

Fig 1A

Gamma
Irradiation of Liquid IgIV in the Absence or Presence of
Ascorbate Alone or in Addition to Gly-Gly

Liquid IgIV, Reduced 5-15%

0.025% 3053-1142-1000

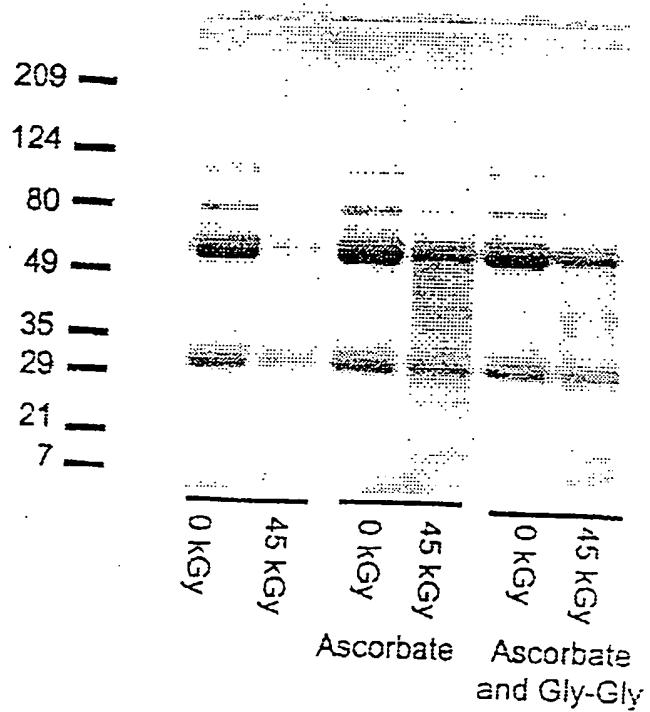


Fig 1B

Gamma
Irradiation of Liquid IgIV in the Absence or Presence of
Ascorbate Alone or in Addition to Gly-Gly

Liquid IgIV, Non-Reduced 5-15%

0.0002950 = 1.041304

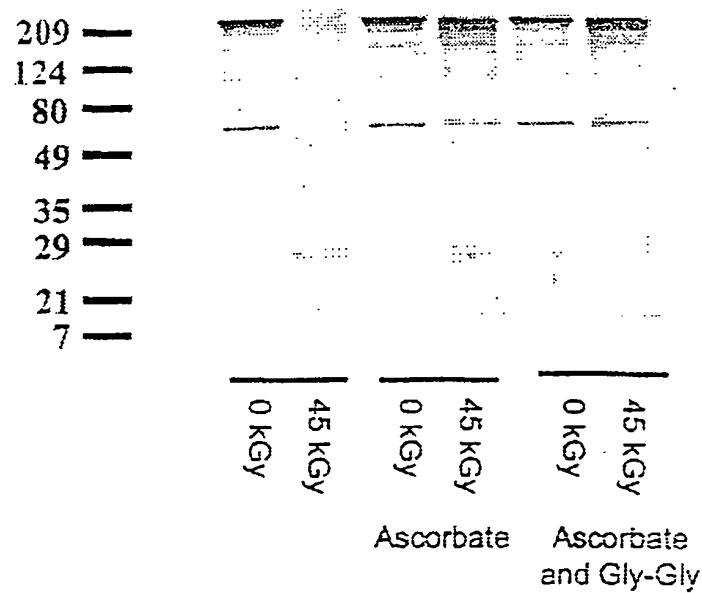
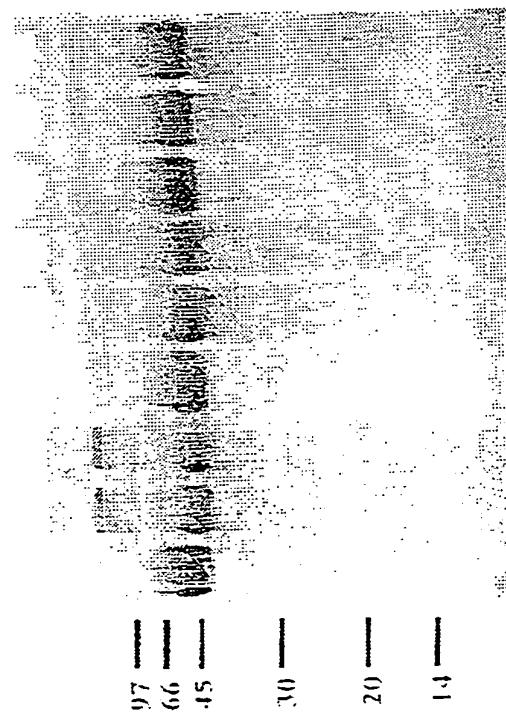


Figure 2A

Gamma Irradiation of a Glycosidase In the
Presence of Ascorbate and Gly-Gly

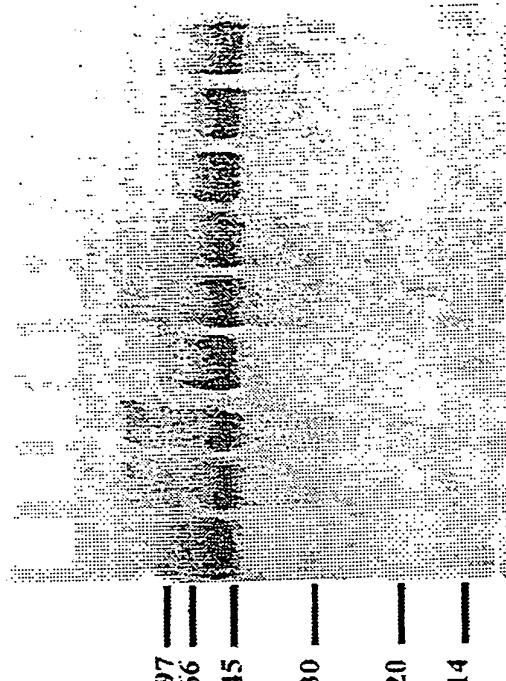
Nonreduced



5.4 kGy/hr, 45 kGy
1.7 kGy/hr, 45 kGy
0 kGy
5.4 kGy/hr, 45 kGy
1.7 kGy/hr, 45 kGy
0 kGy
5.4 kGy/hr, 45 kGy
1.7 kGy/hr, 45 kGy
0 kGy
5.4 kGy/hr, 45 kGy
1.7 kGy/hr, 45 kGy
0 kGy

Ascorbate
and Gly-Gly

Reduced



5.4 kGy/hr, 45 kGy
1.7 kGy/hr, 45 kGy
0 kGy
5.4 kGy/hr, 45 kGy
1.7 kGy/hr, 45 kGy
0 kGy
5.4 kGy/hr, 45 kGy
1.7 kGy/hr, 45 kGy
0 kGy

Ascorbate
and Gly-Gly

Figure B

Gamma Irradiation of a Sulfatase and Gly-Gly
Presence of Ascorbate and Gly-Gly
Reduced

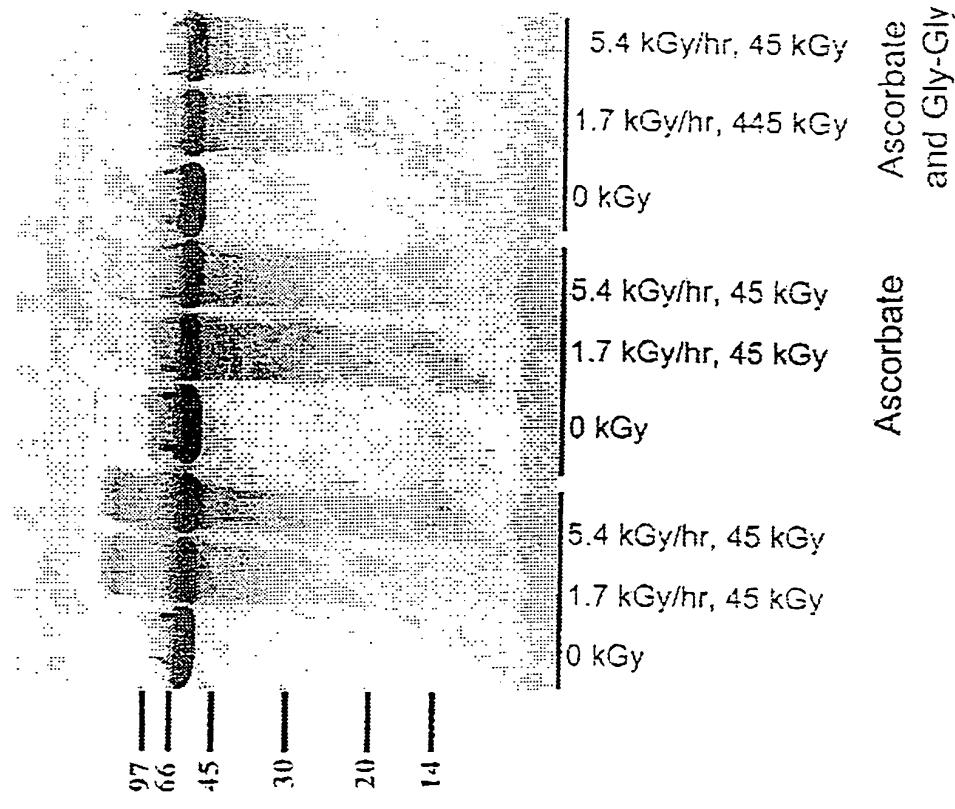


Figure 3

የኢትዮጵያ = የሸጻዊትር የሸጻዊትር

Gamma Irradiation of a Galactosidase In the Presence or Absence of Ascorbate Alone or in Combination with Gly-Gly

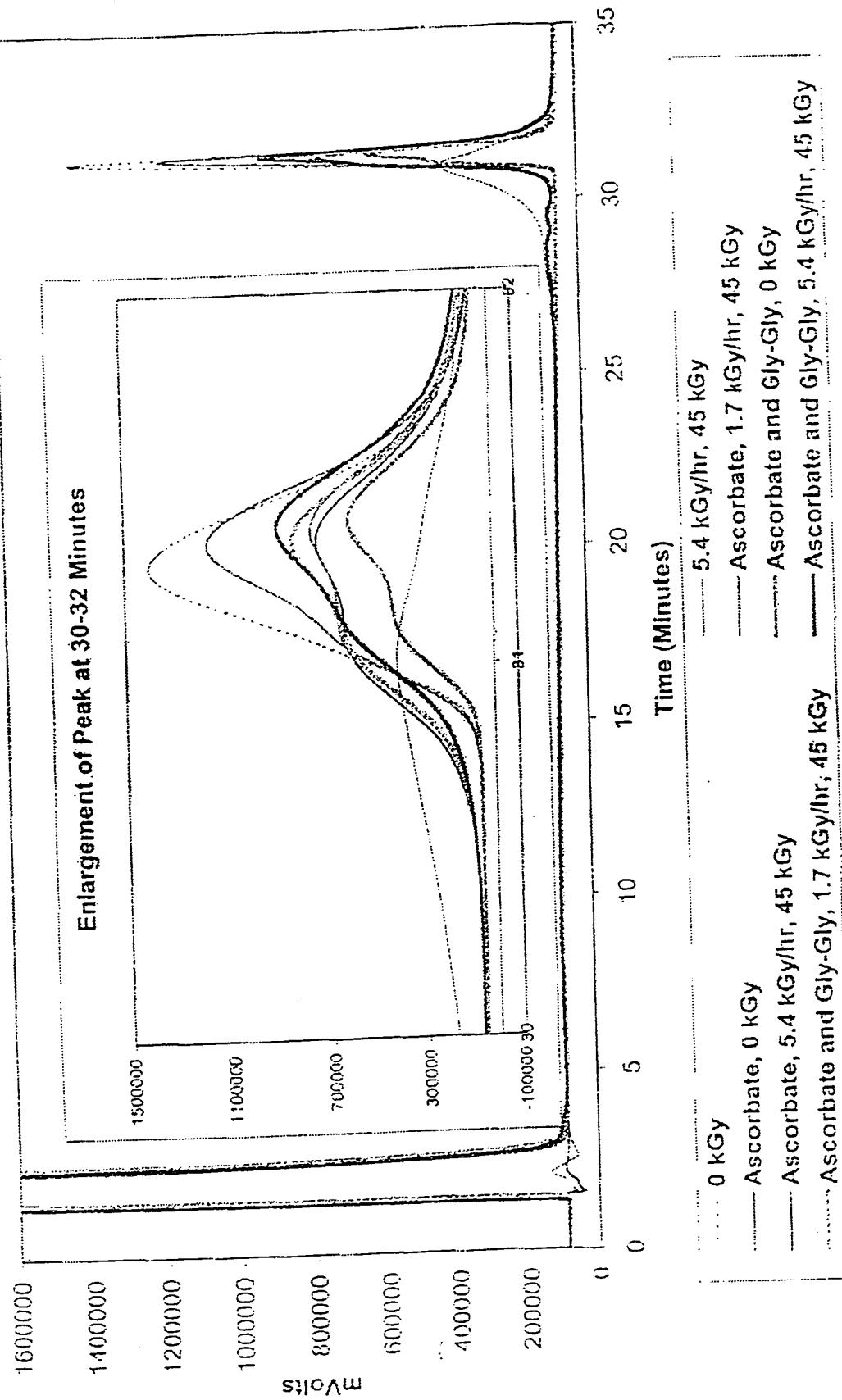


Figure 1

Gamma Irradiation of Immobilized Anti-Insulin Monoclonal Antibody with Varying Ascorbate Concentrations in the Presence or Absence of 1.5mM Uric Acid

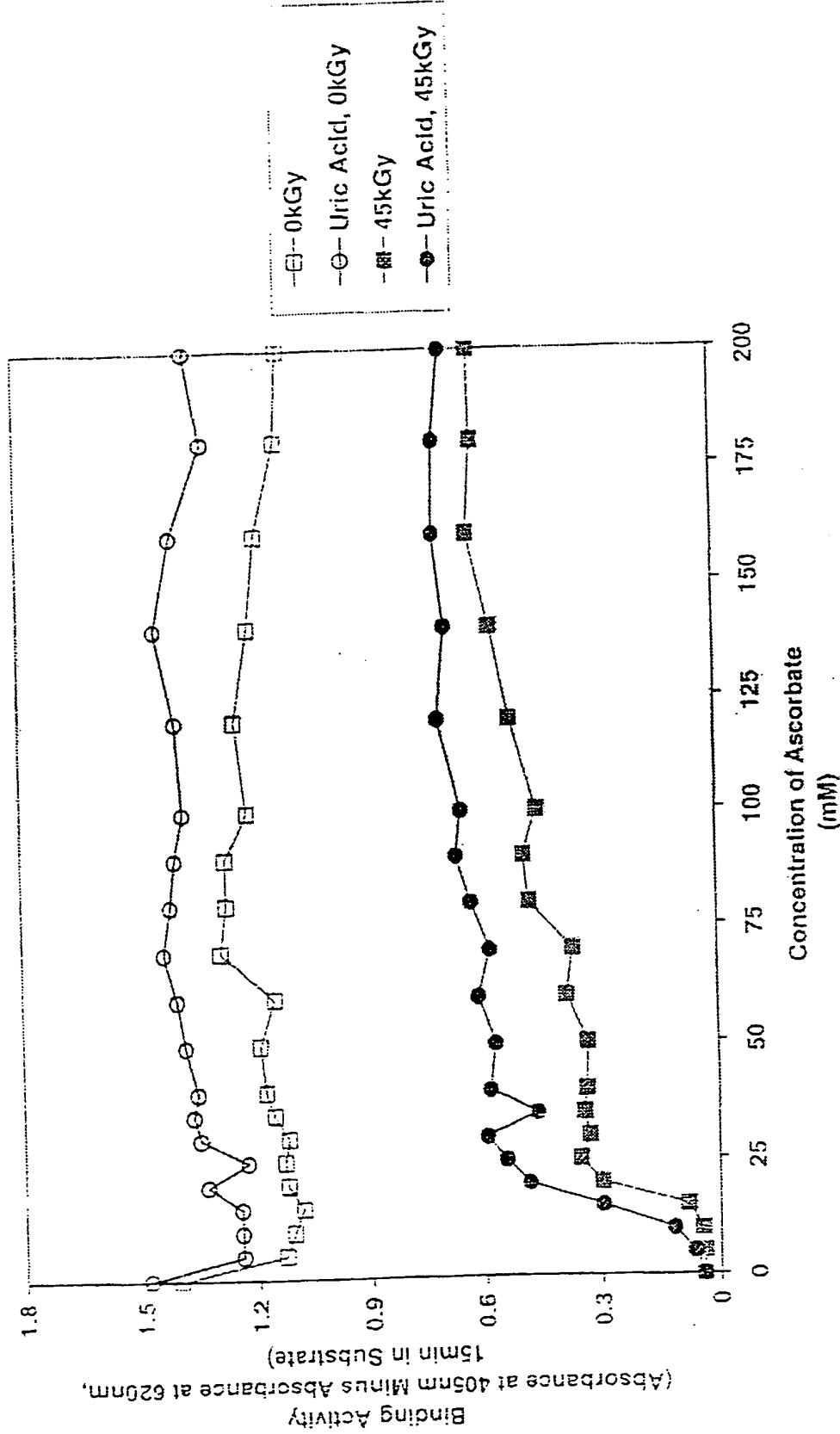


Figure 5

Gamma Irradiation of Immobilized Anti-Insulin Monoclonal Antibody with Varying Ascorbate Concentrations in the Presence or Absence of 2.25mM Uric Acid

Gamma Irradiation of Immobilized Anti-Insulin Monoclonal Antibody with Varying Ascorbate Concentrations in the Presence or Absence of 2.25mM Uric Acid

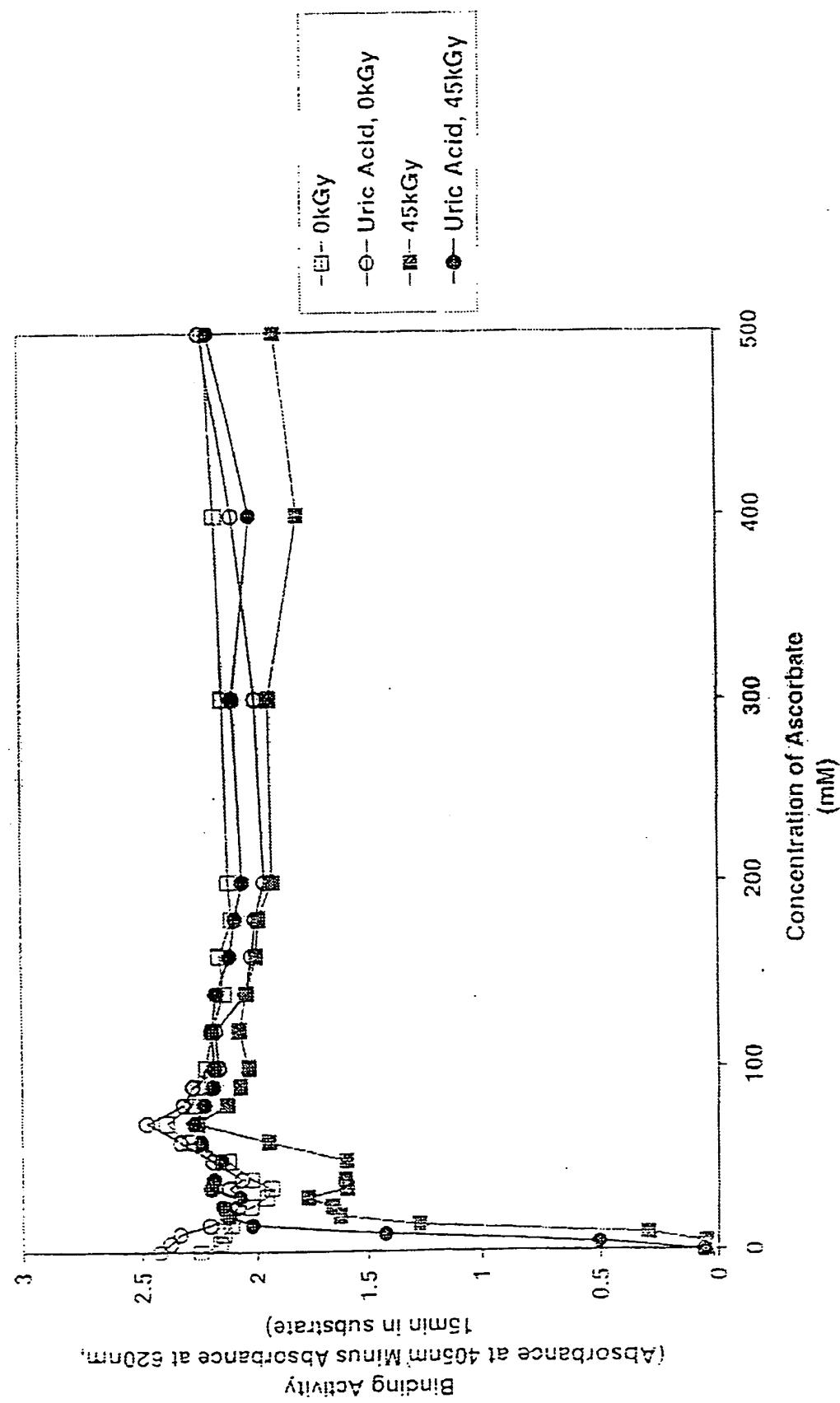
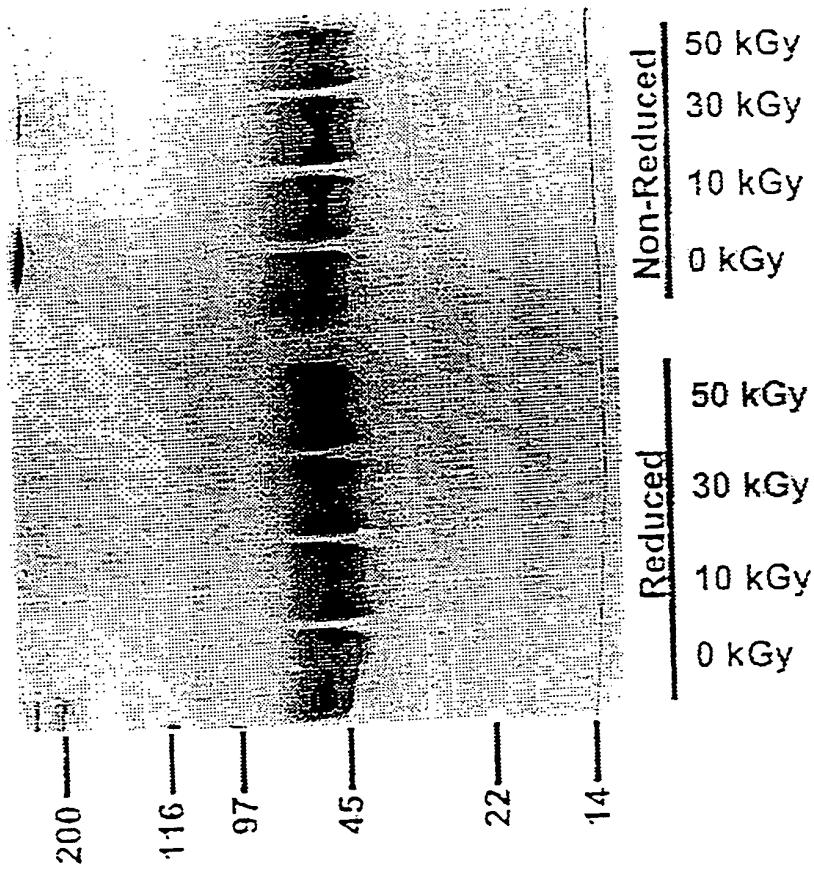


Figure 6

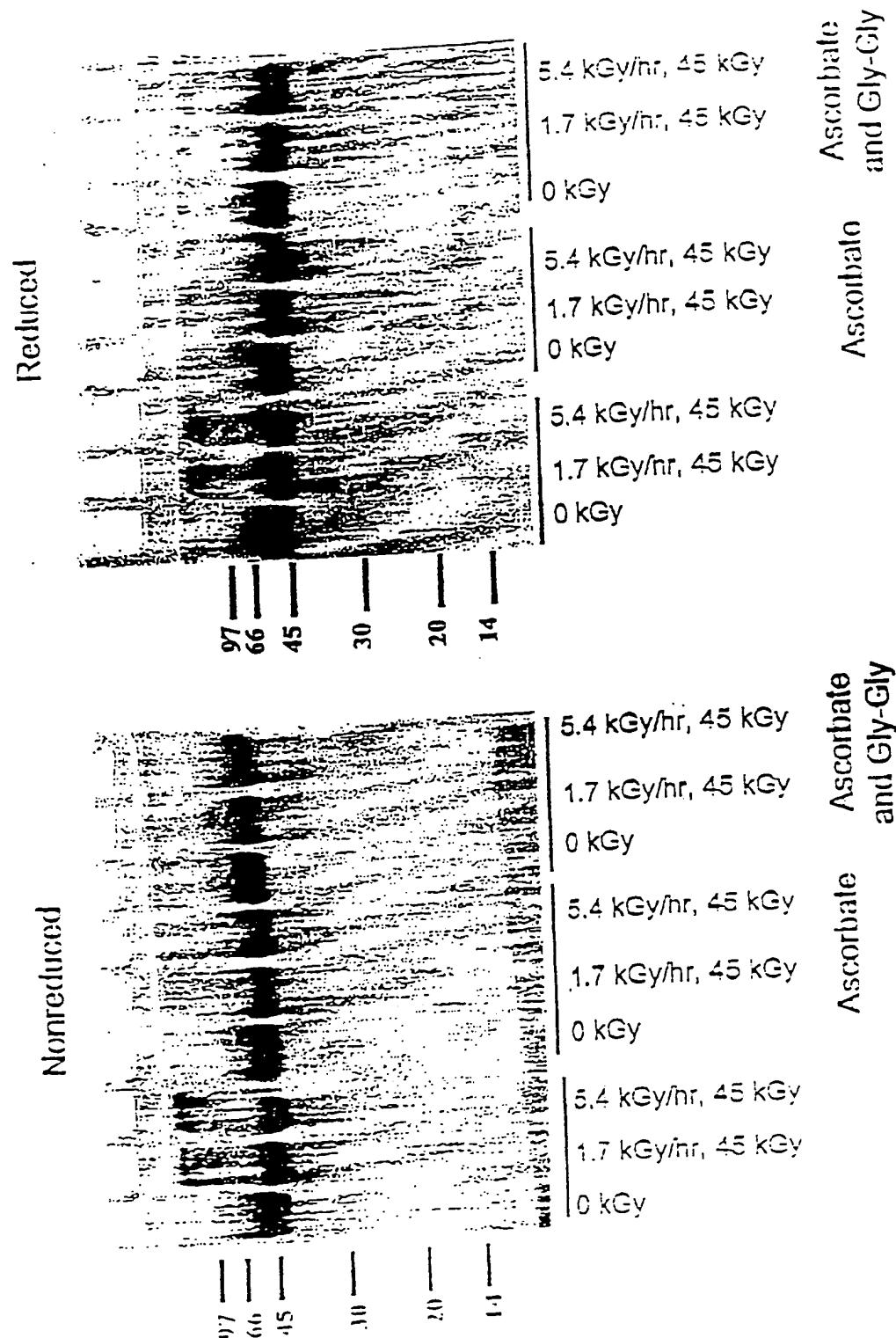
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Gamma Irradiation of a Lyophilized Galactosidase
In the Presence of 200mM Ascorbate and 200mM Gly-Gly

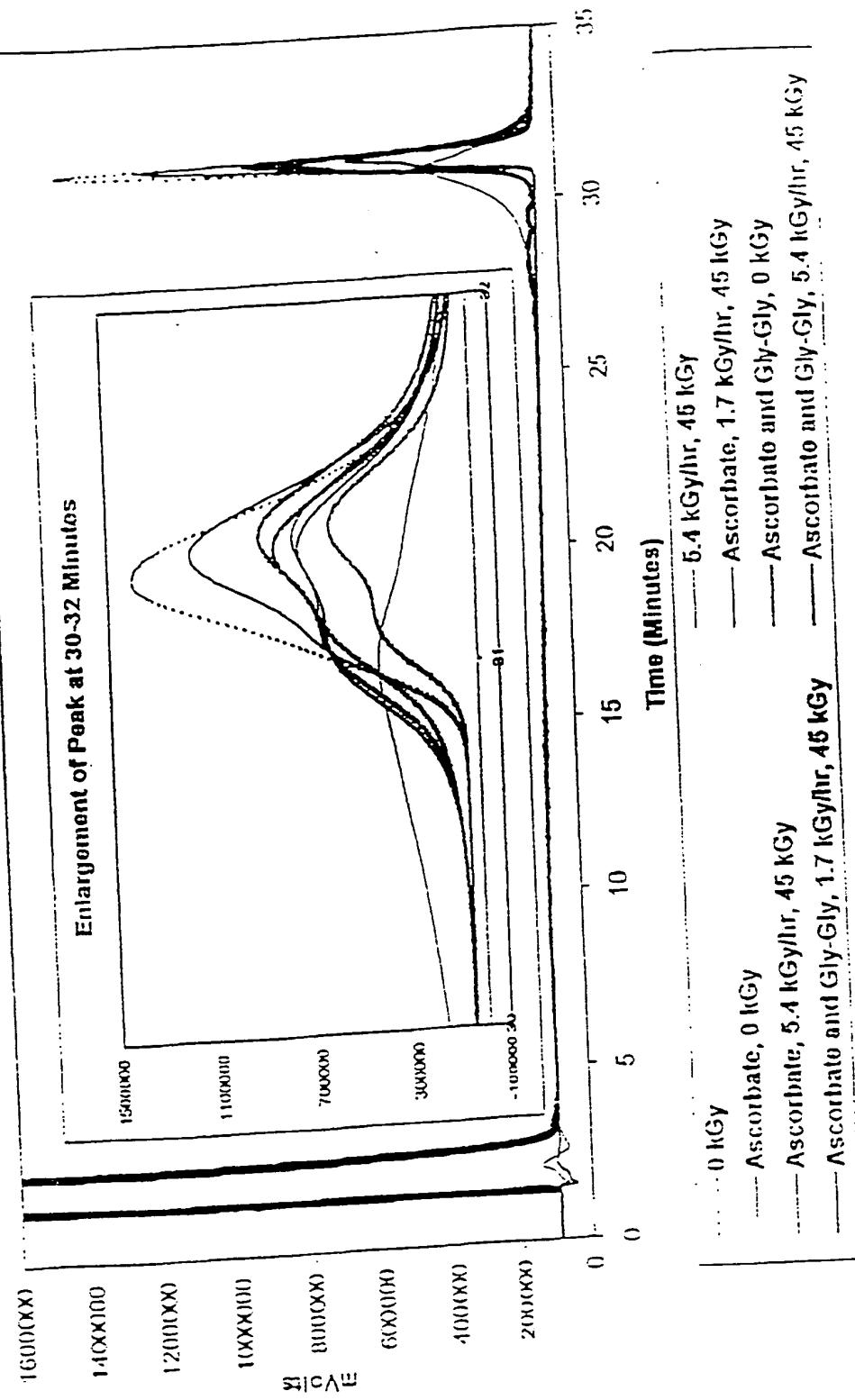
Reduced & Non-Reduced, 10%



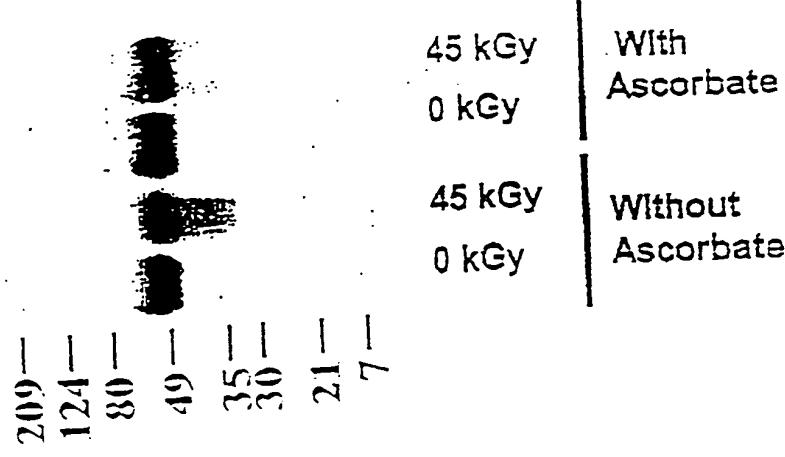
Gamma Irradiation of a Galactosidase in the Absence Or Presence of Ascorbate Alone or in Combination with Gly-Gly



Gamma Irradiation of a Galactosidase in the Presence or Absence of Ascorbate Alone or in Combination with Gly-Gly

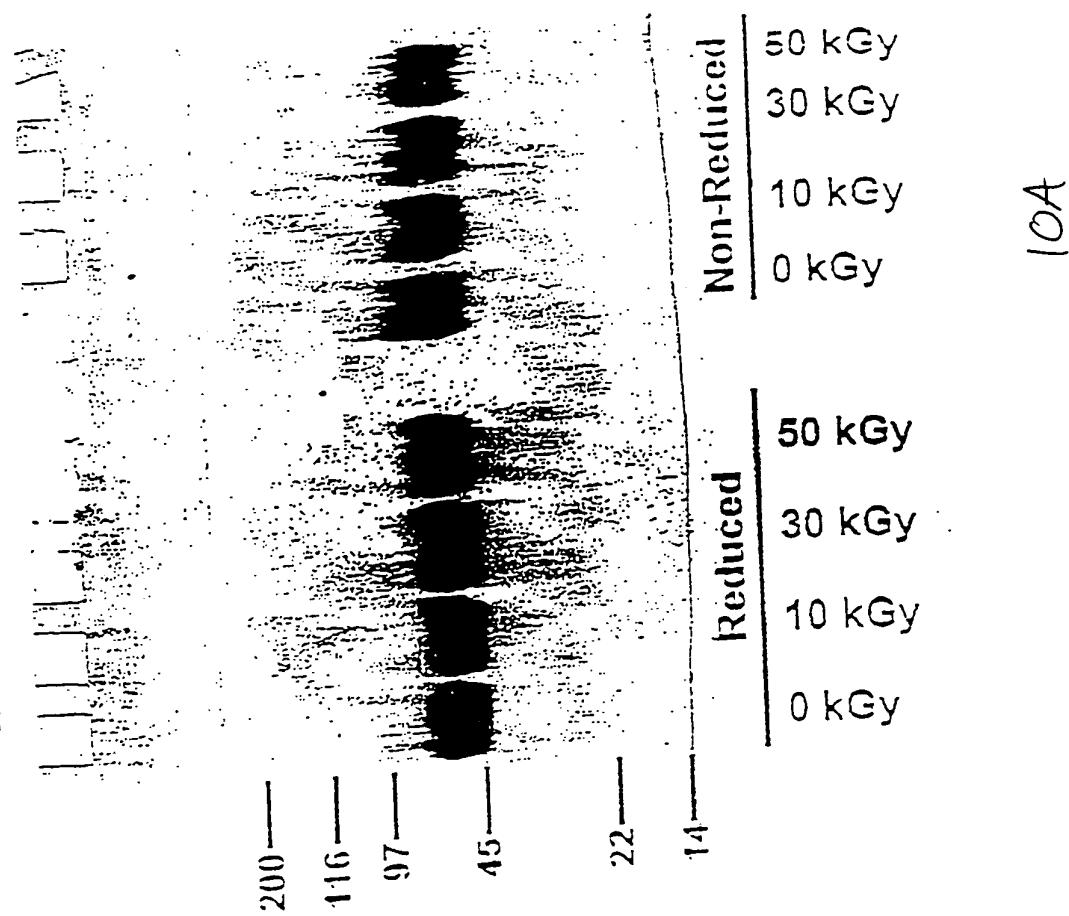


Gamma Irradiation of a Lyophilized Galactosidase in the Absence and Presence of 100mM Ascorbate



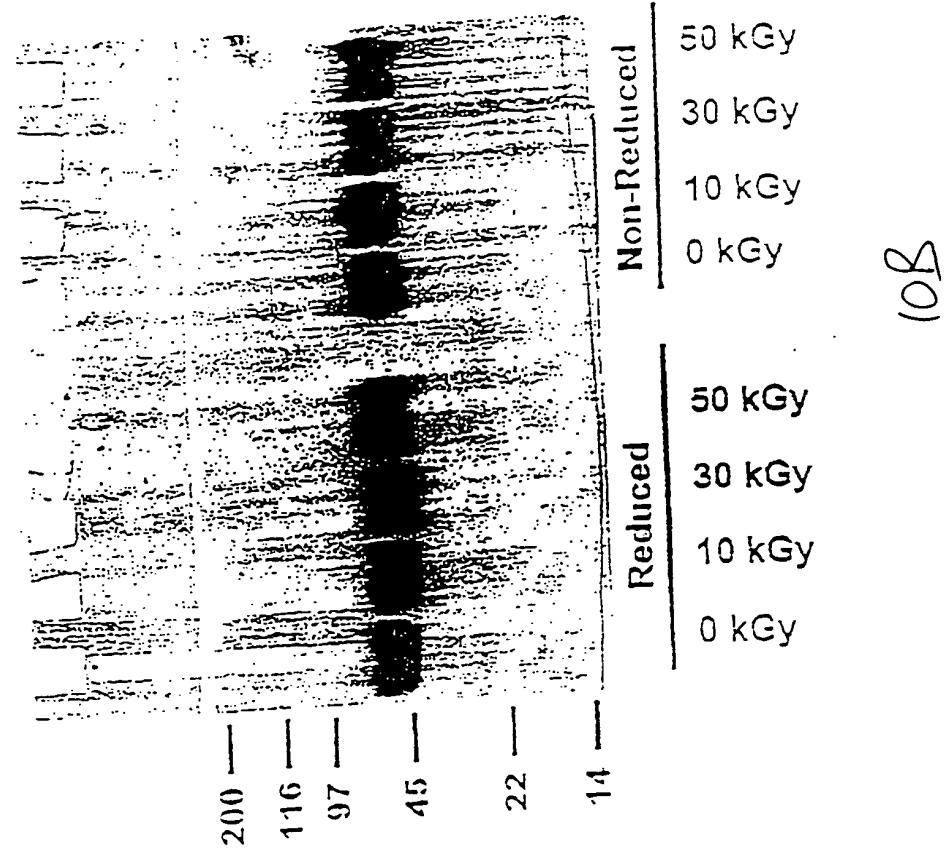
9

Gamma Irradiation of a Lyophilized Galactosidase In the Absence of Stabilizers Reduced and Non-Reduced, 10%



Gamma Irradiation of a Lyophilized Galactosidase In the Presence of 200mM Ascorbate

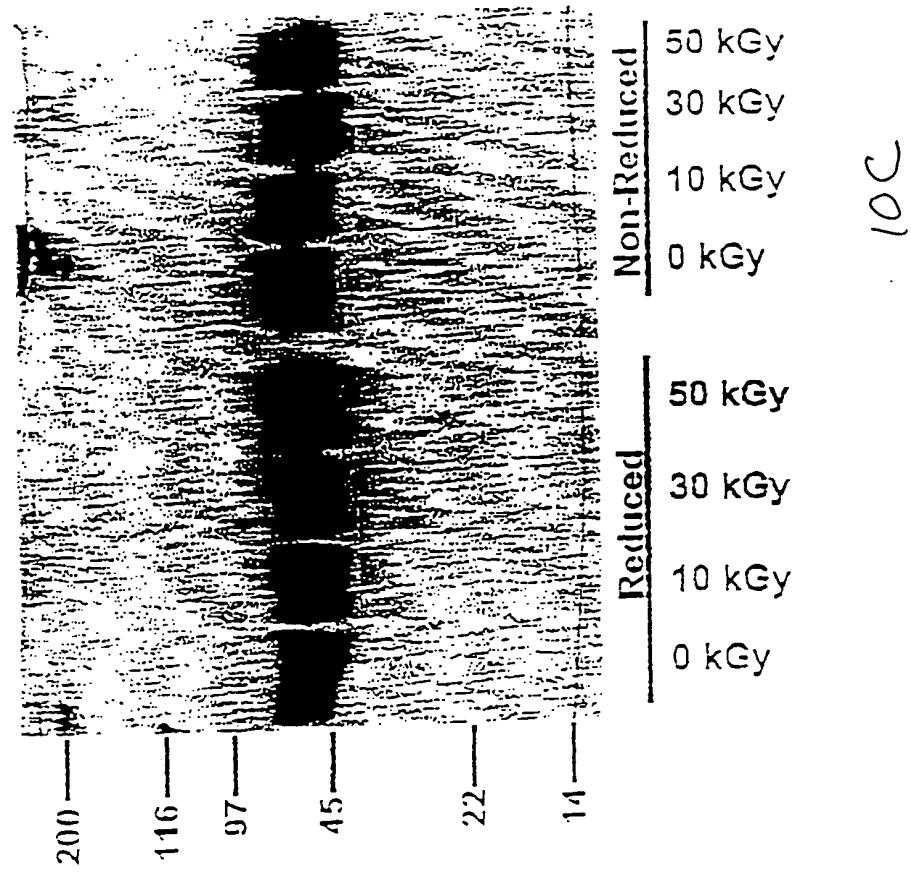
Reduced & Non-Reduced, 10%



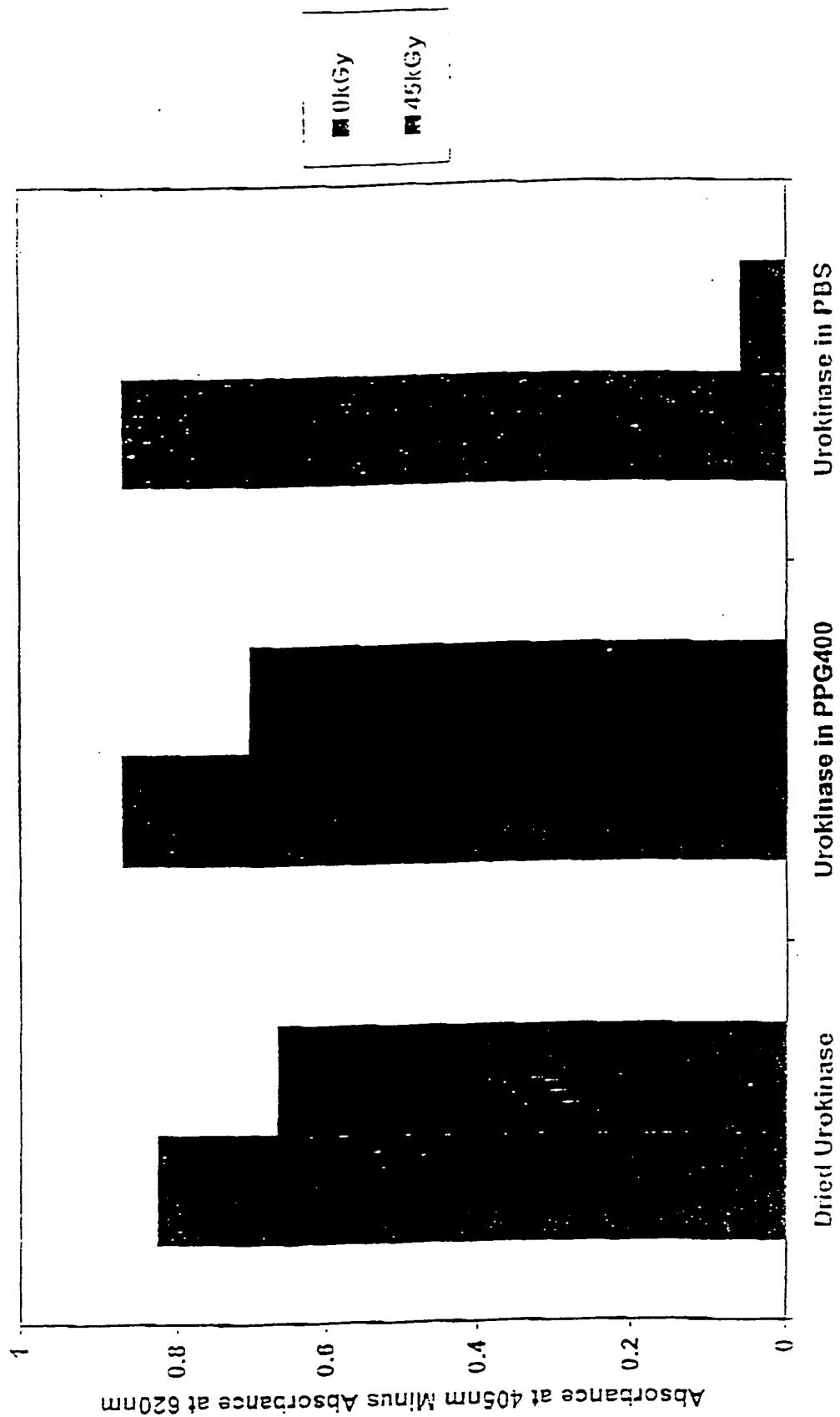
(οβ

Gamma Irradiation of a Lyophilized Galactosidase In the Presence of 200mM Ascorbate and 200mM Gly-Gly

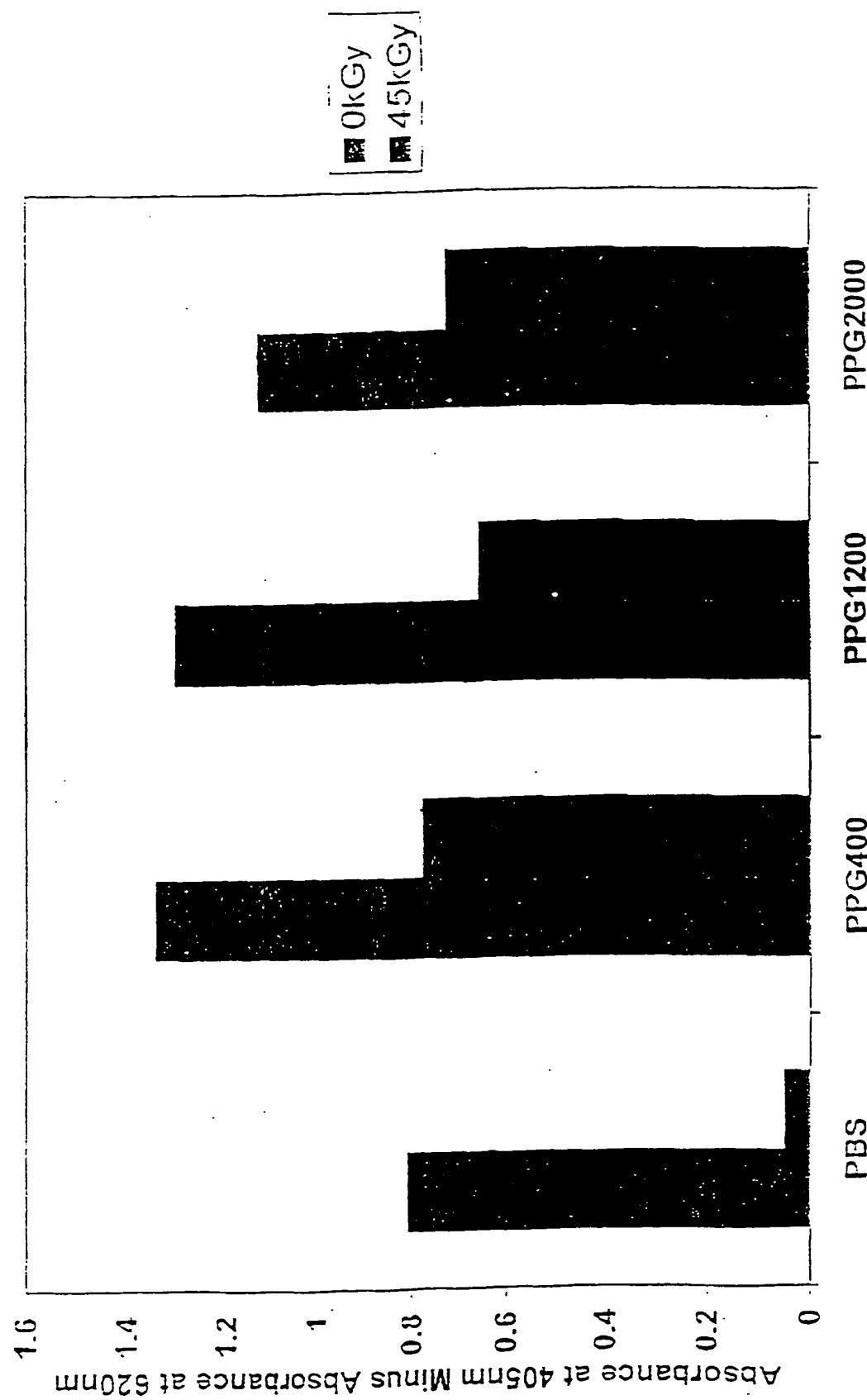
Reduced & Non-Reduced, 10%_a



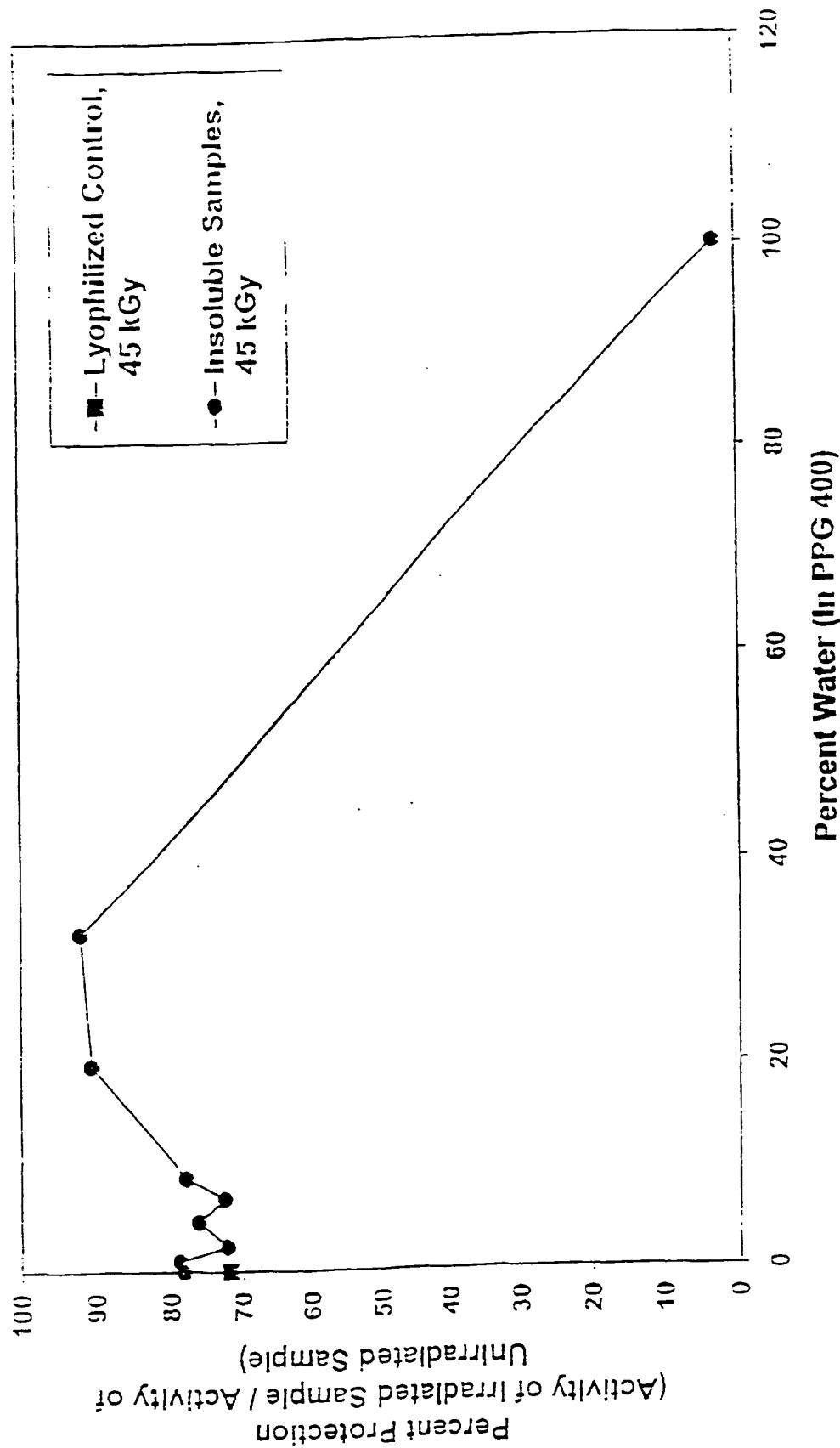
Gamma Irradiation of Dried Urokinase Suspended in PPG400



Gamma Irradiation of Immobilized Monoclonal Antibody in the Presence of various PPGs

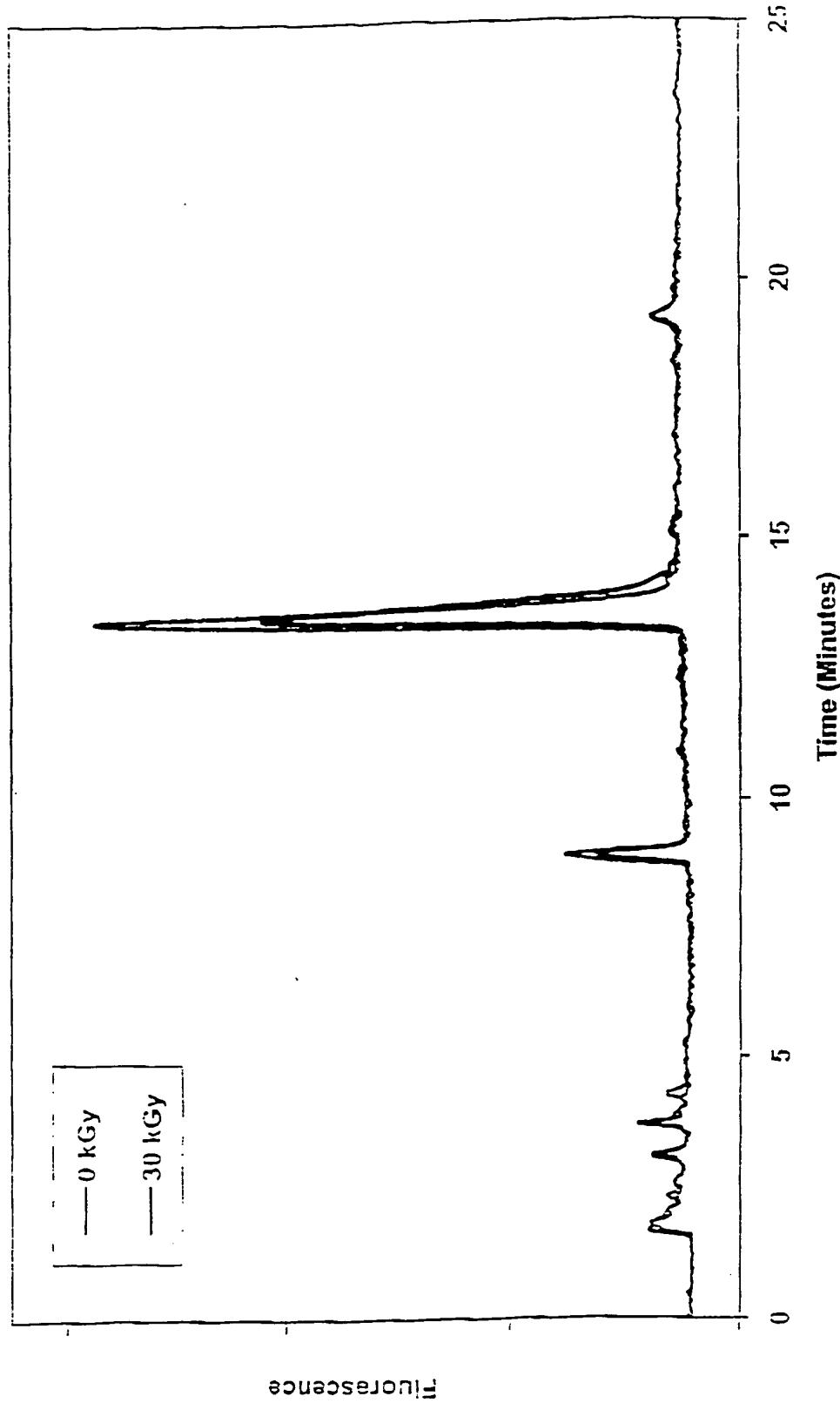


Gamma Irradiation of Trypsin In the Presence of Increasing Amounts of Added Moisture



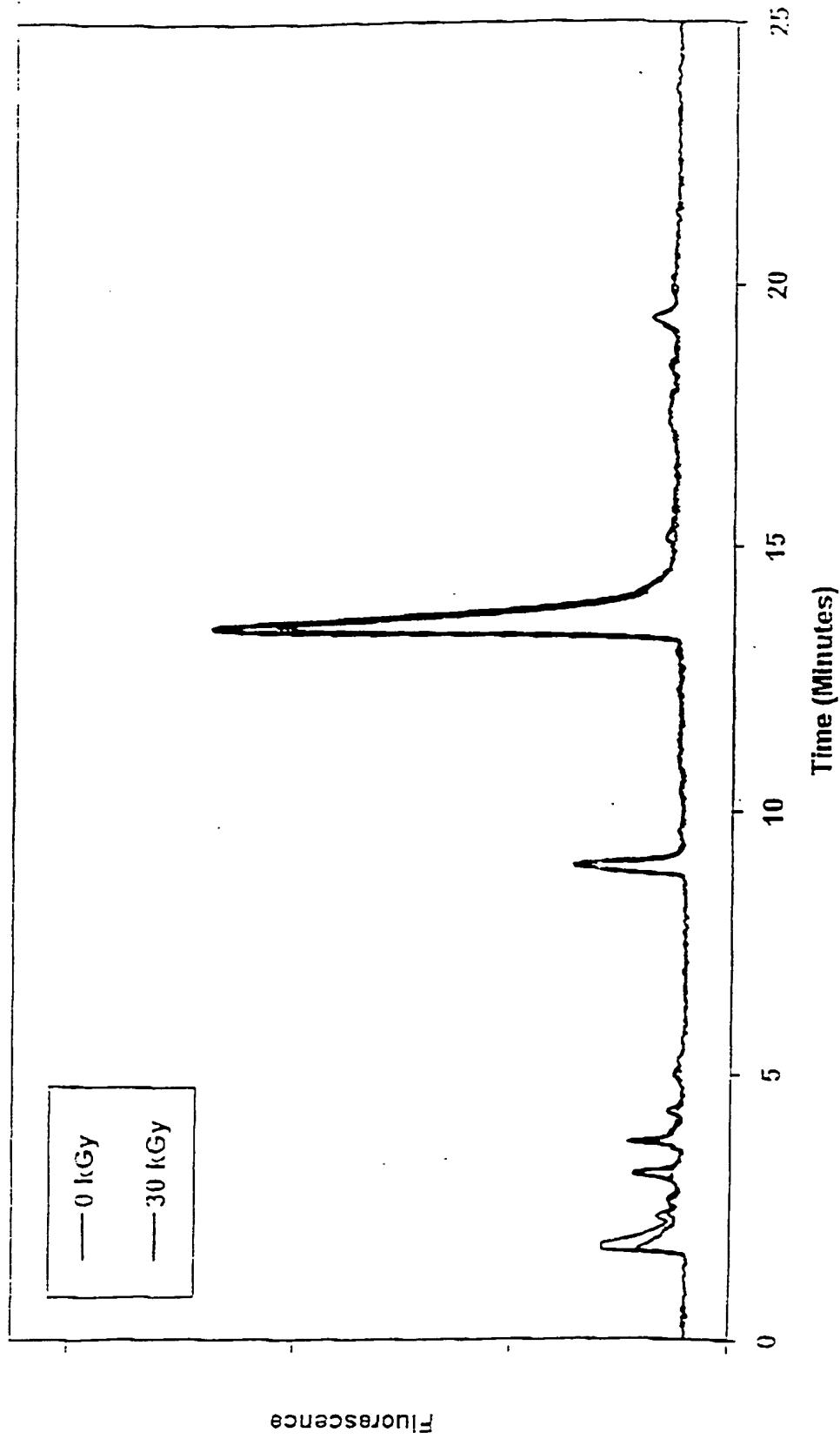
13

**Gamma Irradiation of Hydrolyzed
Heart Valve Cusps in the Presence of PPG 400**

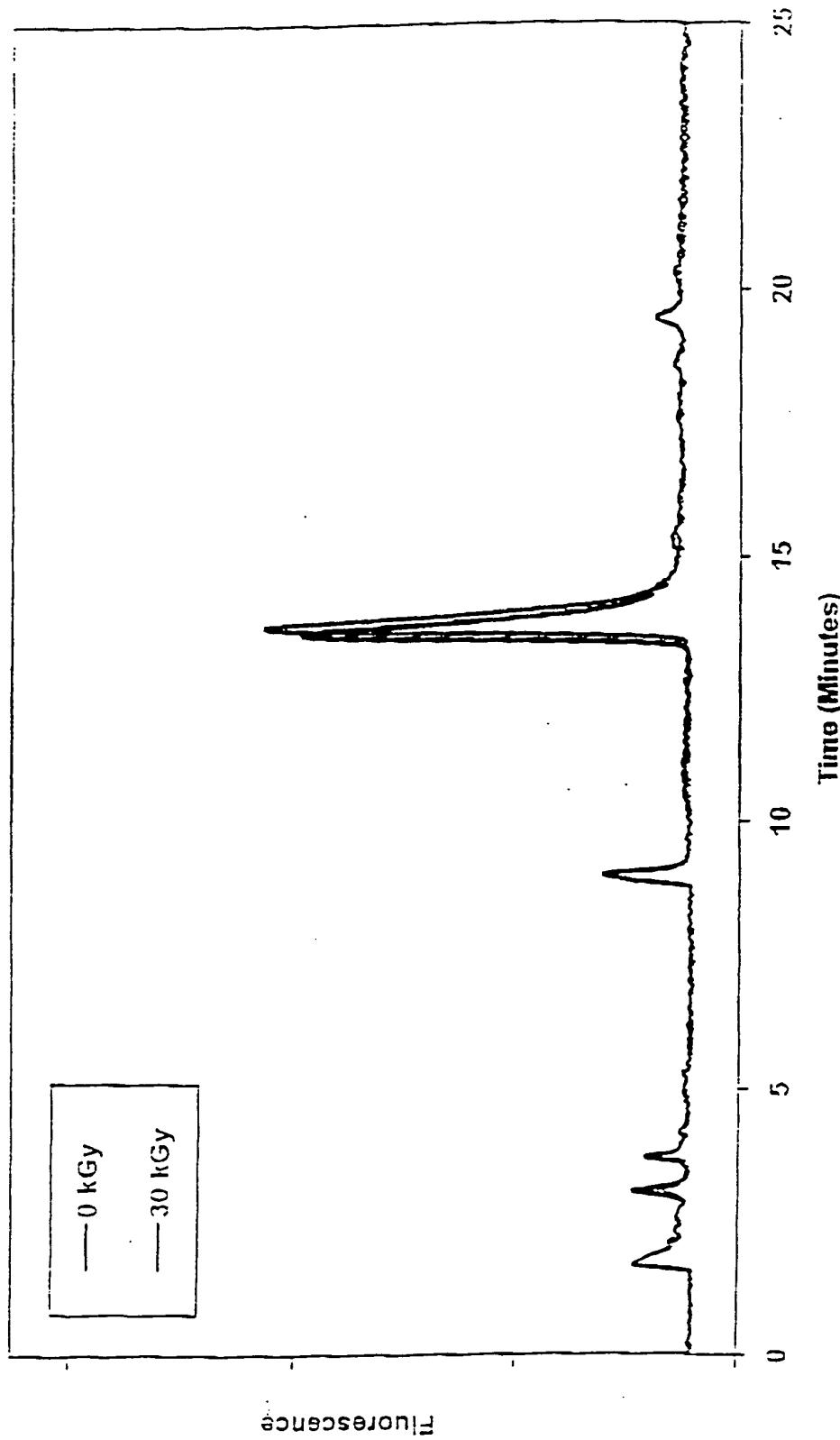


14A

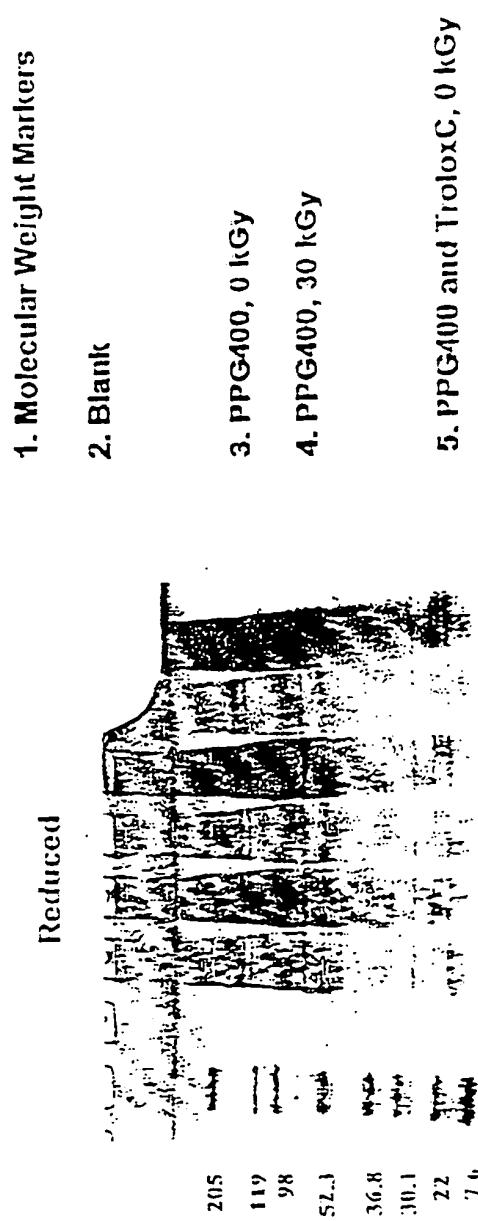
Gamma Irradiation of Hydrolyzed Heart Valve
Cusps in the Presence of PPG 400 and 125 mM Trolox C



Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence
of PPG 400 and a Stabilizer Mixture of 62.5mM TroloxC, 100mM Lipoic
Acid, 100mM Coumaric Acid, and 100mM n-Propyl Gallate



Gamma Irradiation of Porcine Heart Valve Cusps in the Presence of PPG400 with Various Stabilizers

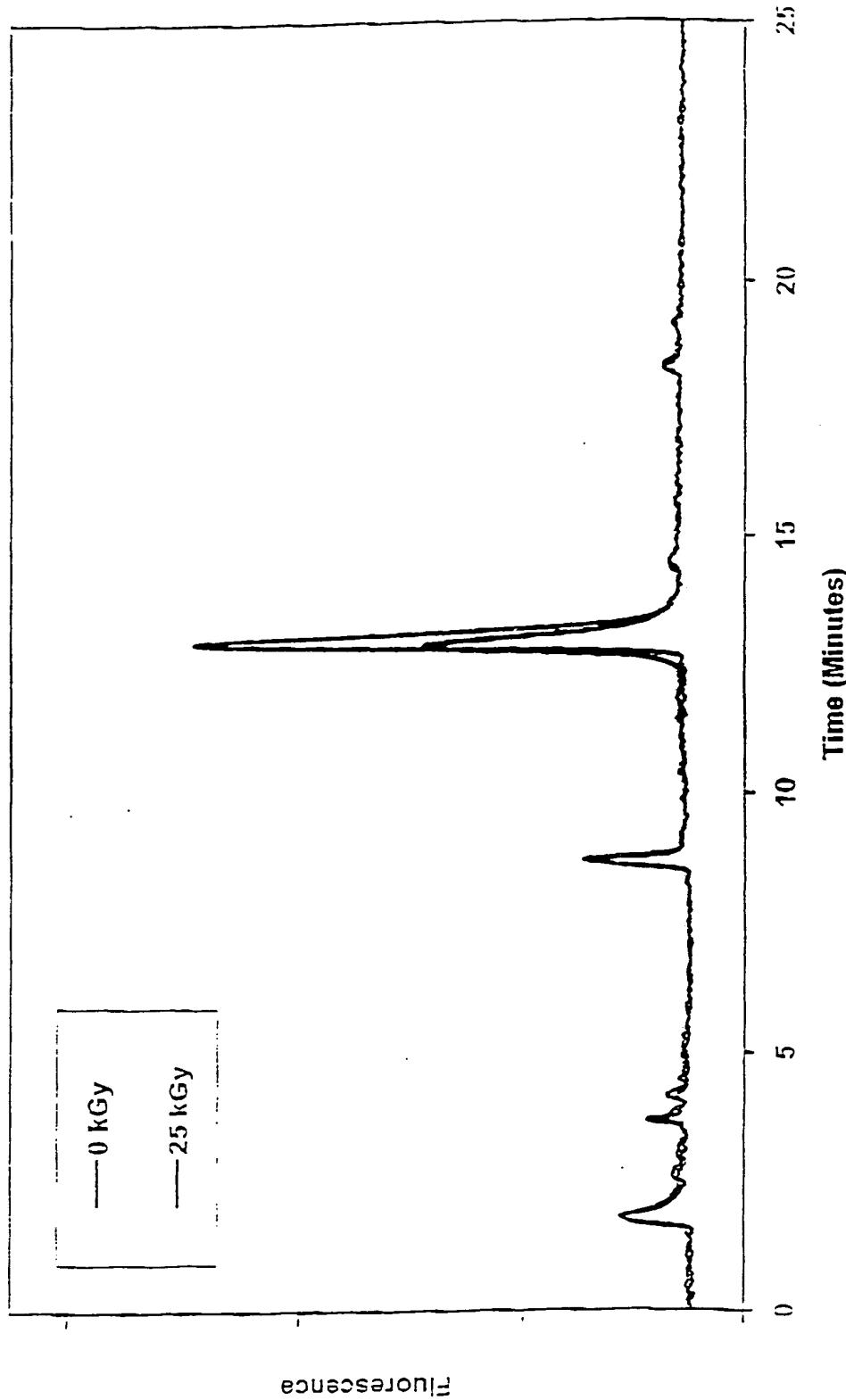


7. PPG400 and a Cocktail of TroloxC, Lipoic Acid, Coumaric Acid, and n-Propyl Gallate, 0 kGy

8. PPG400 and a Cocktail of TroloxC, Lipoic Acid, Coumaric Acid, and n-Propyl Gallate, 30kGy

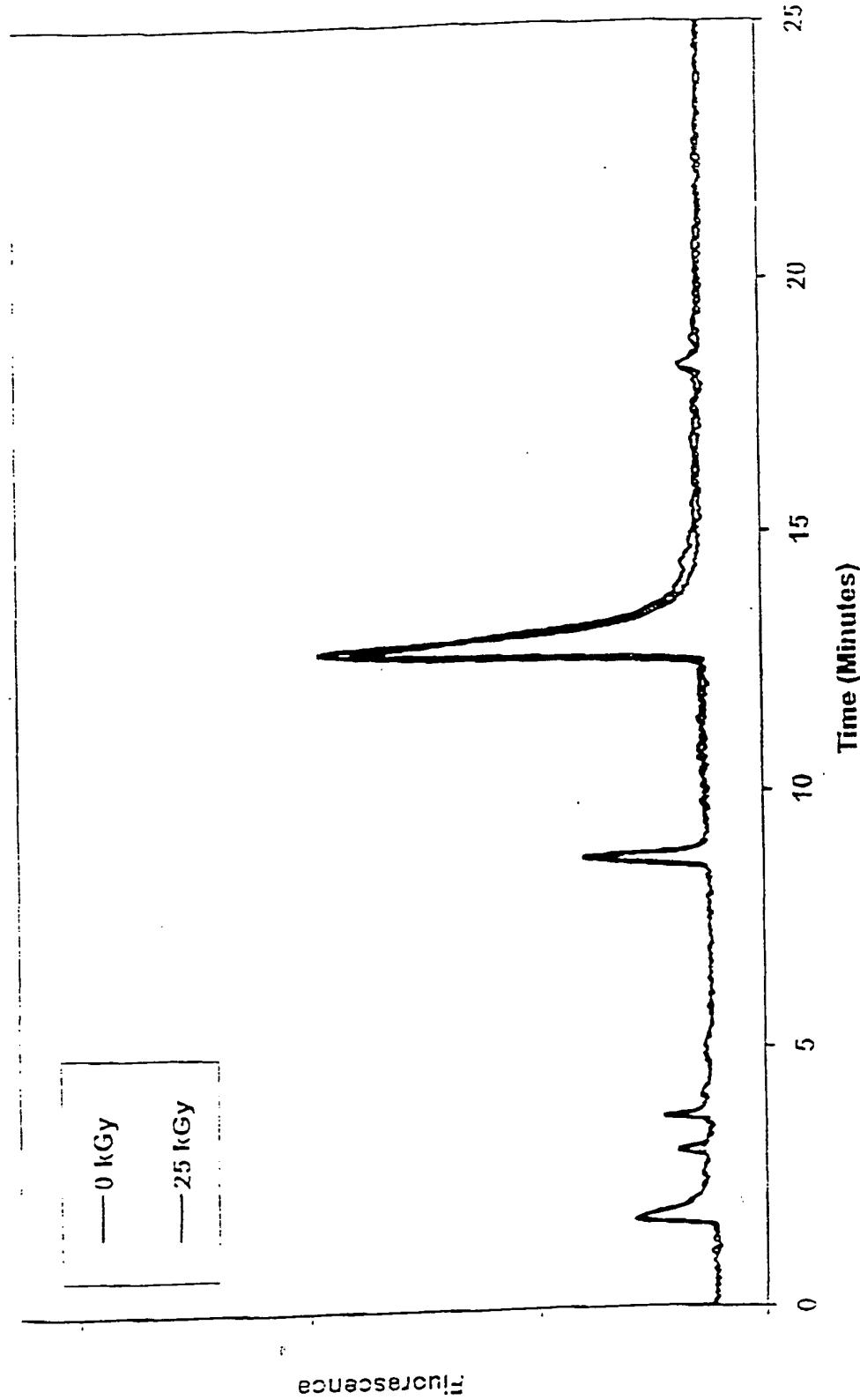
44

Gamma Irradiation of Hydrolyzed Heart Valve
Cusps in the Presence of PBS

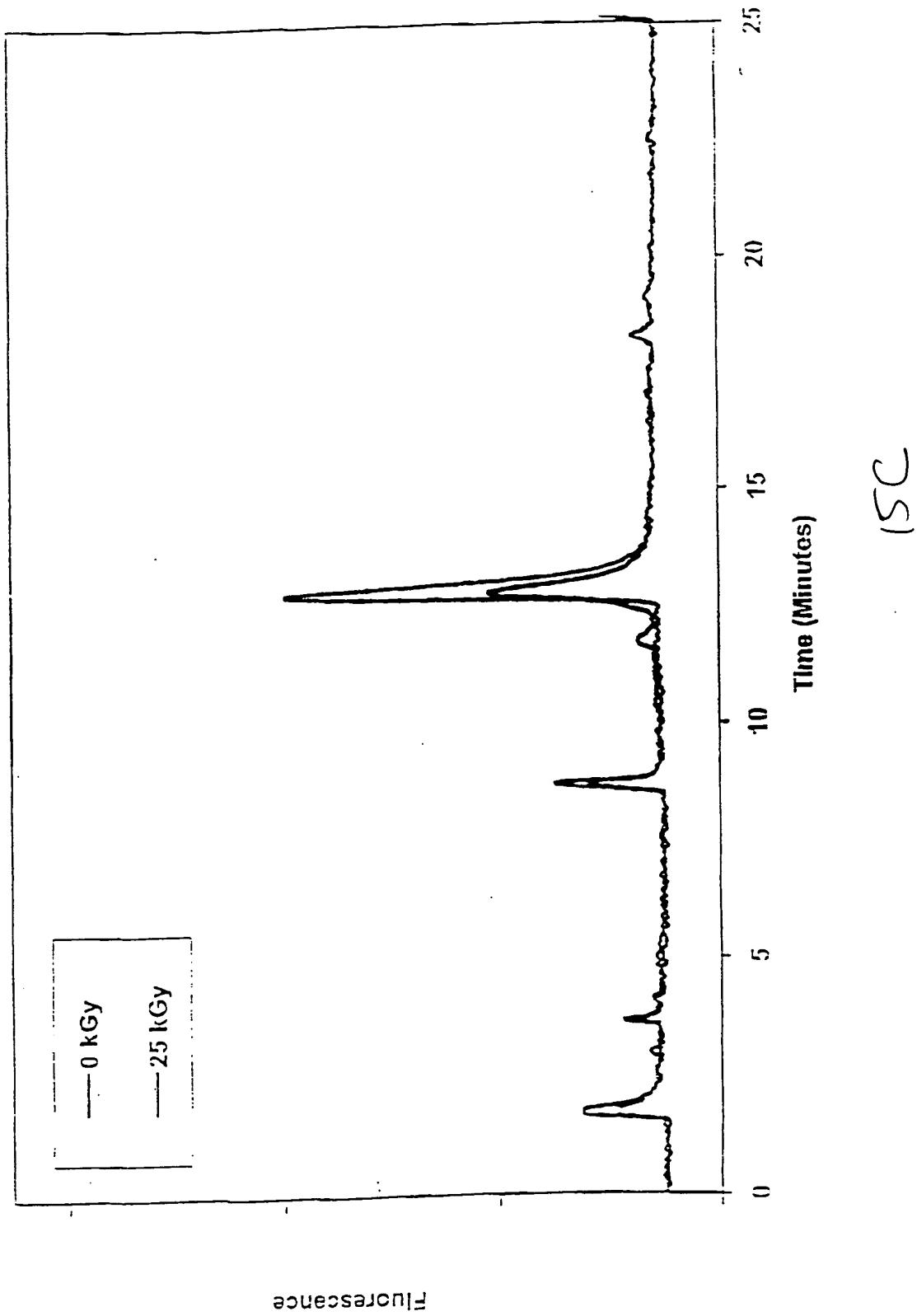


15A

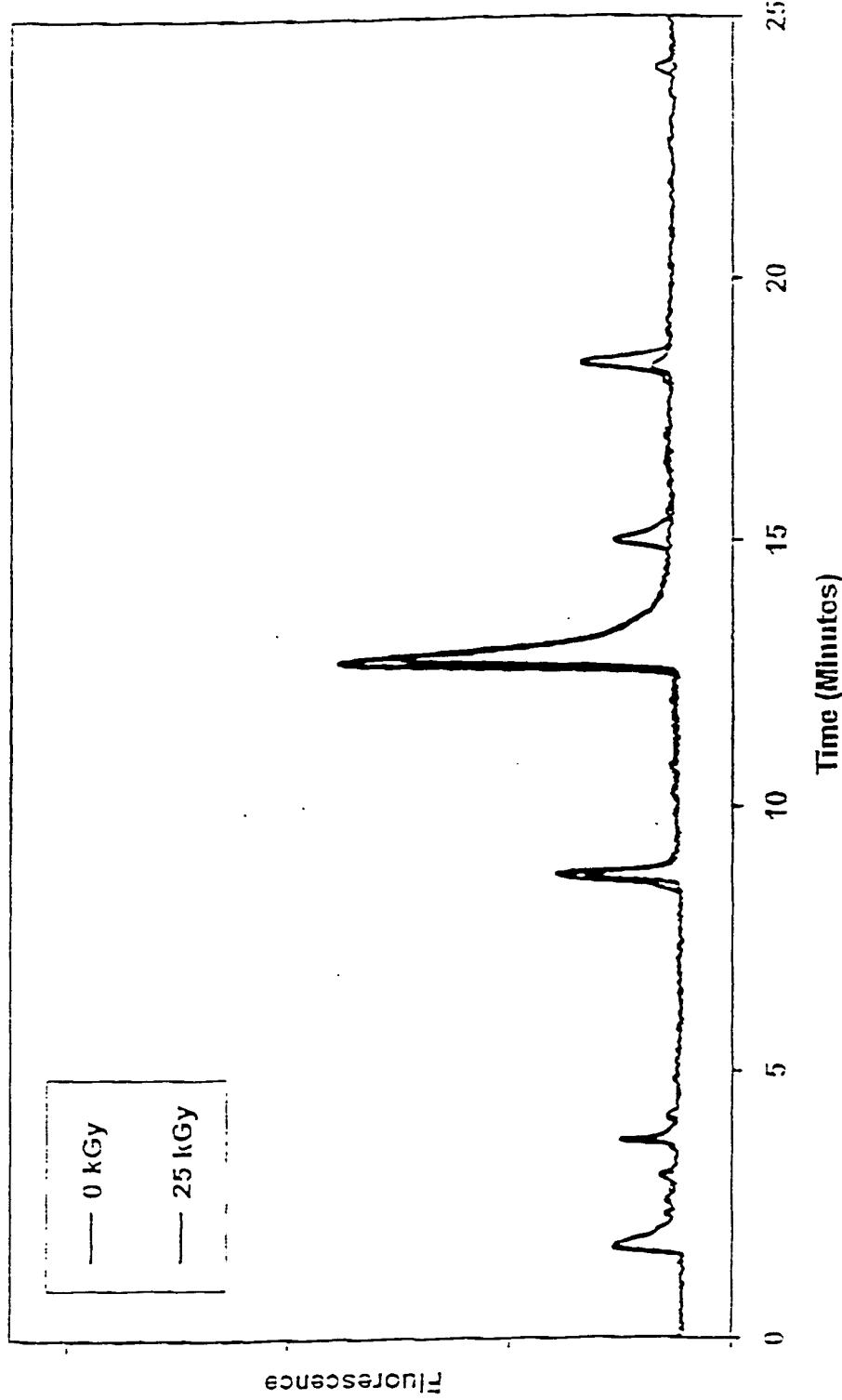
Gamma Irradiation of Hydrolyzed Heart Valve
Cusps in the Presence of PPG 400



**Gamma Irradiation of Hydrolyzed Heart Valve Cusps
in the Presence of 50% DMSO**



Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the
Presence of 50% DMSO and a Stabilizer Mixture of 167 mM Ascorbate,
166 mM Coumaric Acid, and 100 mM n-Propyl Gallate

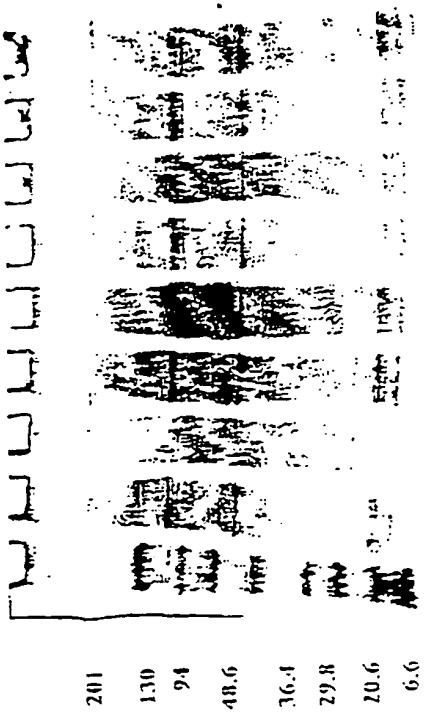


ISD

Gamma Irradiation of Porcine Heart Valve Cusps in the Presence of Various Solvents

Reduced

1. Molecular Weight Markers



2. PBS, 0 kGy
3. PBS, 25 kGy
4. PPG400, 0 kGy
5. PPG400, 25 kGy
6. 50% DMSO, 0 kGy
7. 50% DMSO, 25 kGy

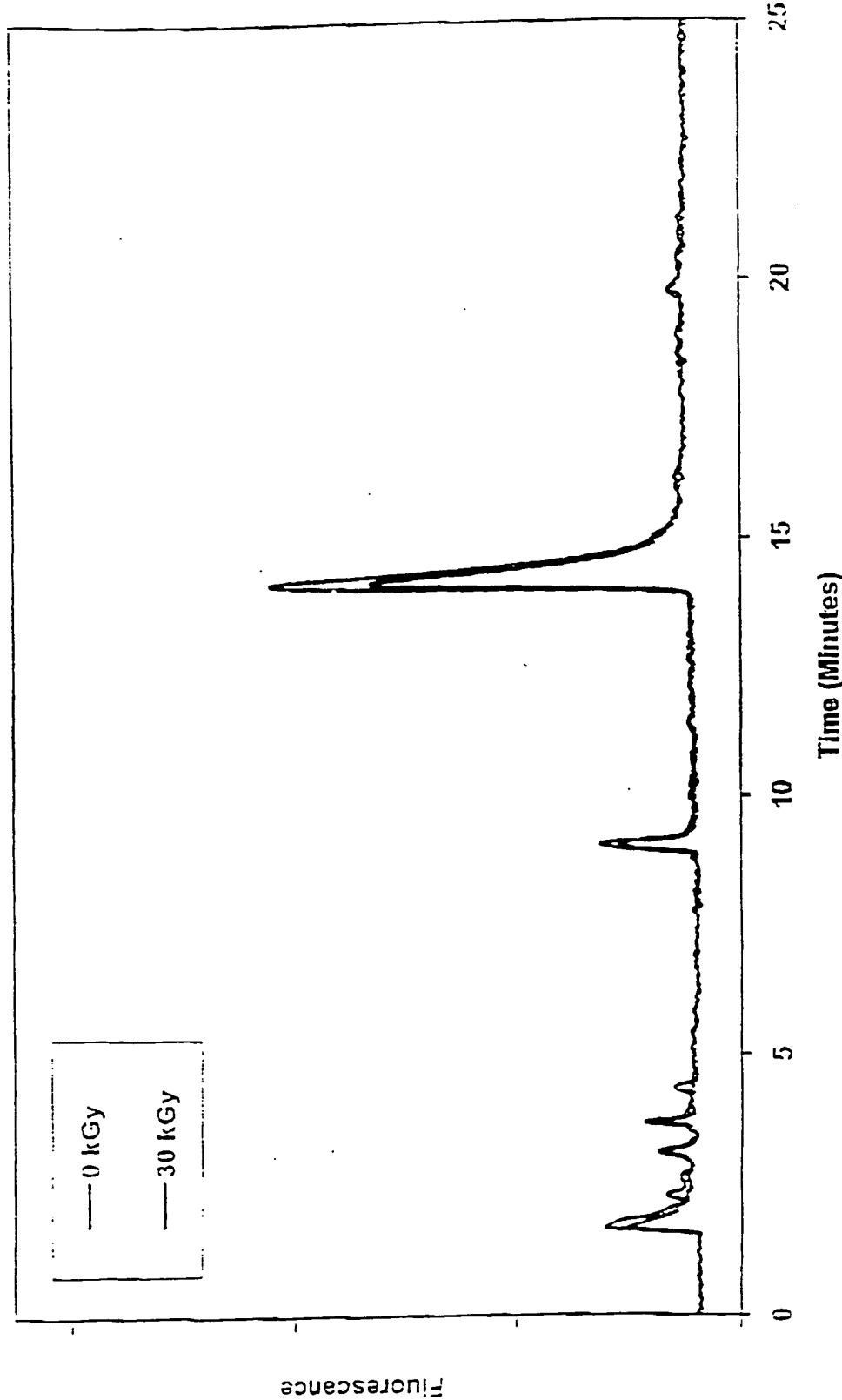
1 2 3 4 5 6 7 8 9

8. 50% DMSO and Cocktail of Ascorbate,
Coumaric Acid, and n-Propyl Gallate, 0 kGy

9. 50% DMSO and Cocktail of Ascorbate,
Coumaric Acid, and n-Propyl Gallate, 25 kGy

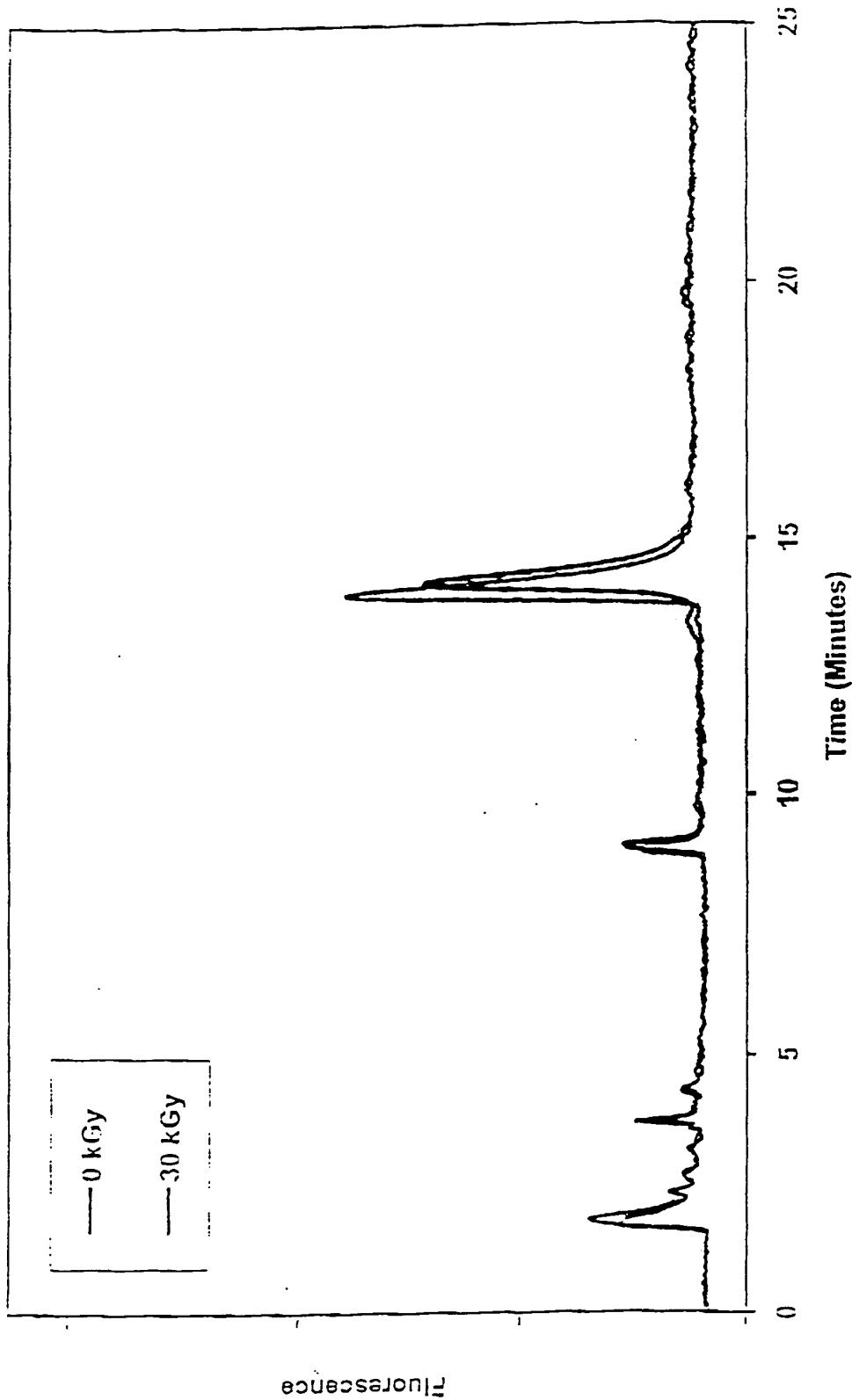
15E

**Gamma Irradiation of Hydrolyzed Heart Valve
Cusps in the Presence of PBS**



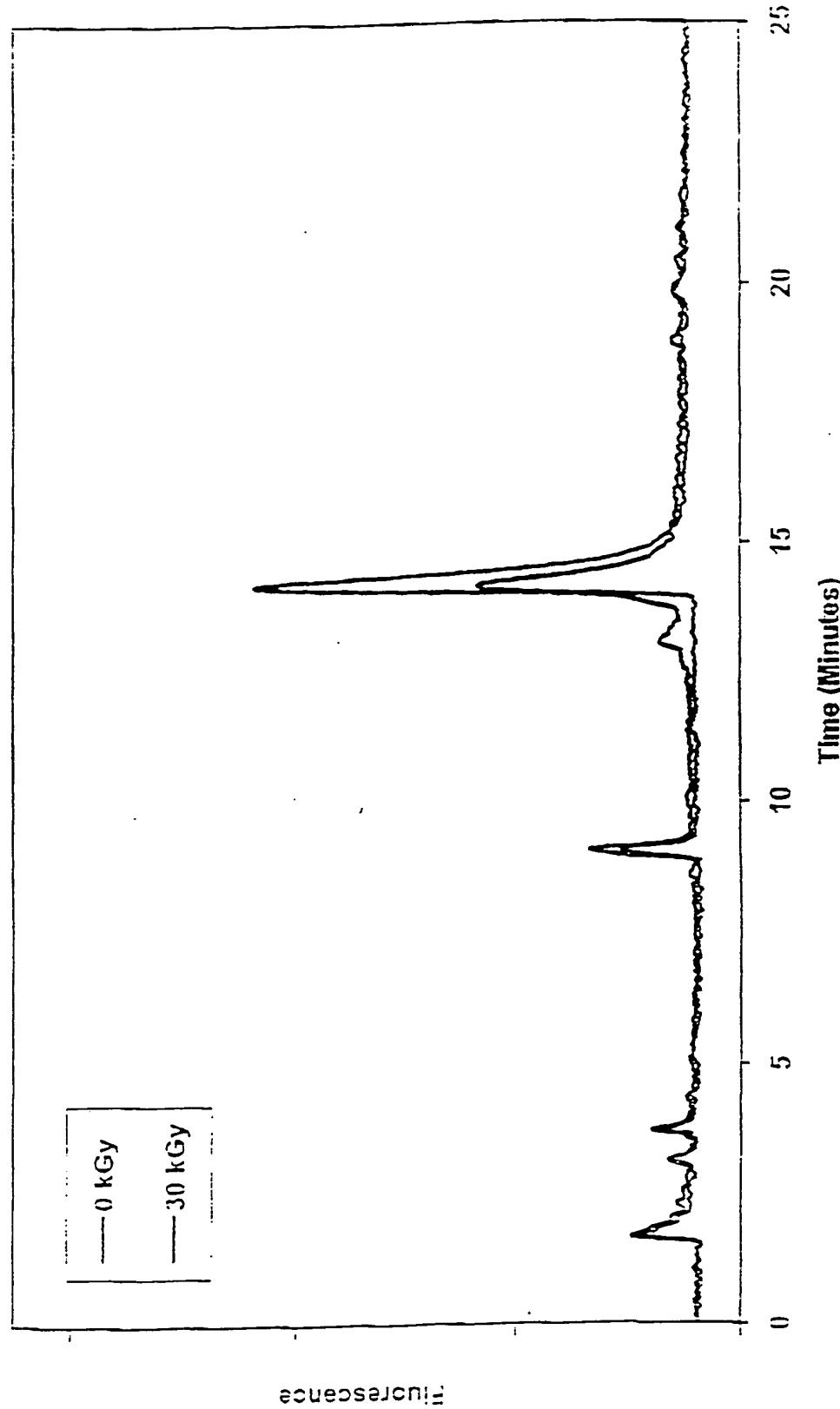
16A

Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the Presence of a Cryopreservative (Containing Approximately 20% DMSO)



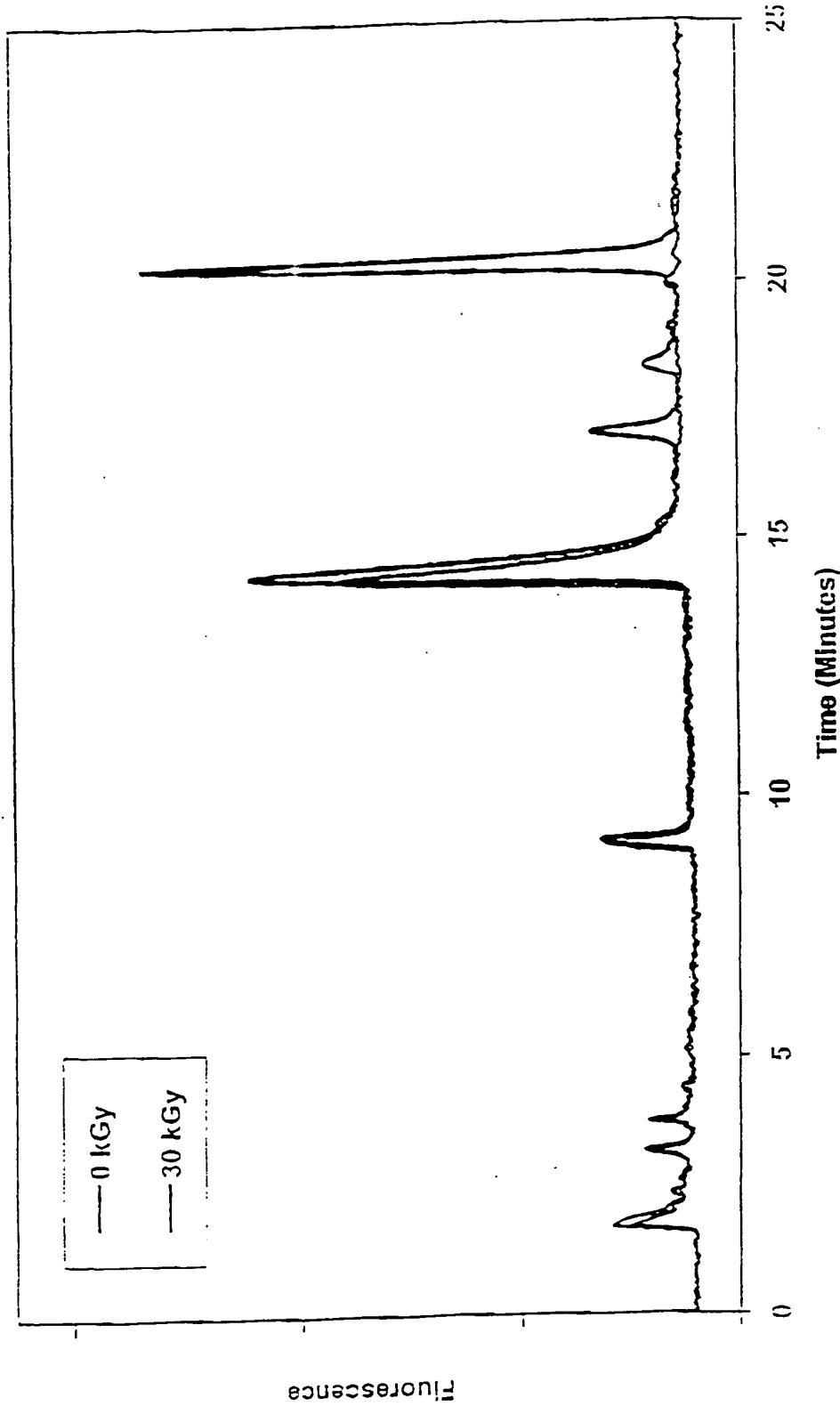
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Gamma Irradiation of Hydrated Heart Valve
Cusps in the Presence of 50% DMSO



16C

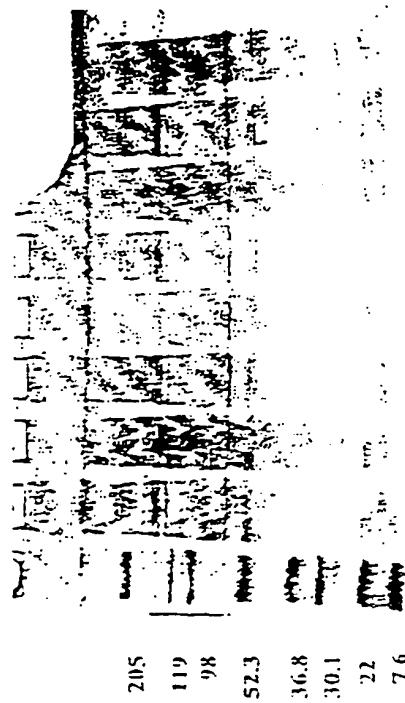
Gamma Irradiation of Hydrolyzed Heart Valve Cusps in the
Presence of 50% DMSO and Ascorbate



16 D

Gamma Irradiation of Porcine Heart Valve Cusps in the Presence of Various Solvents

Reduced



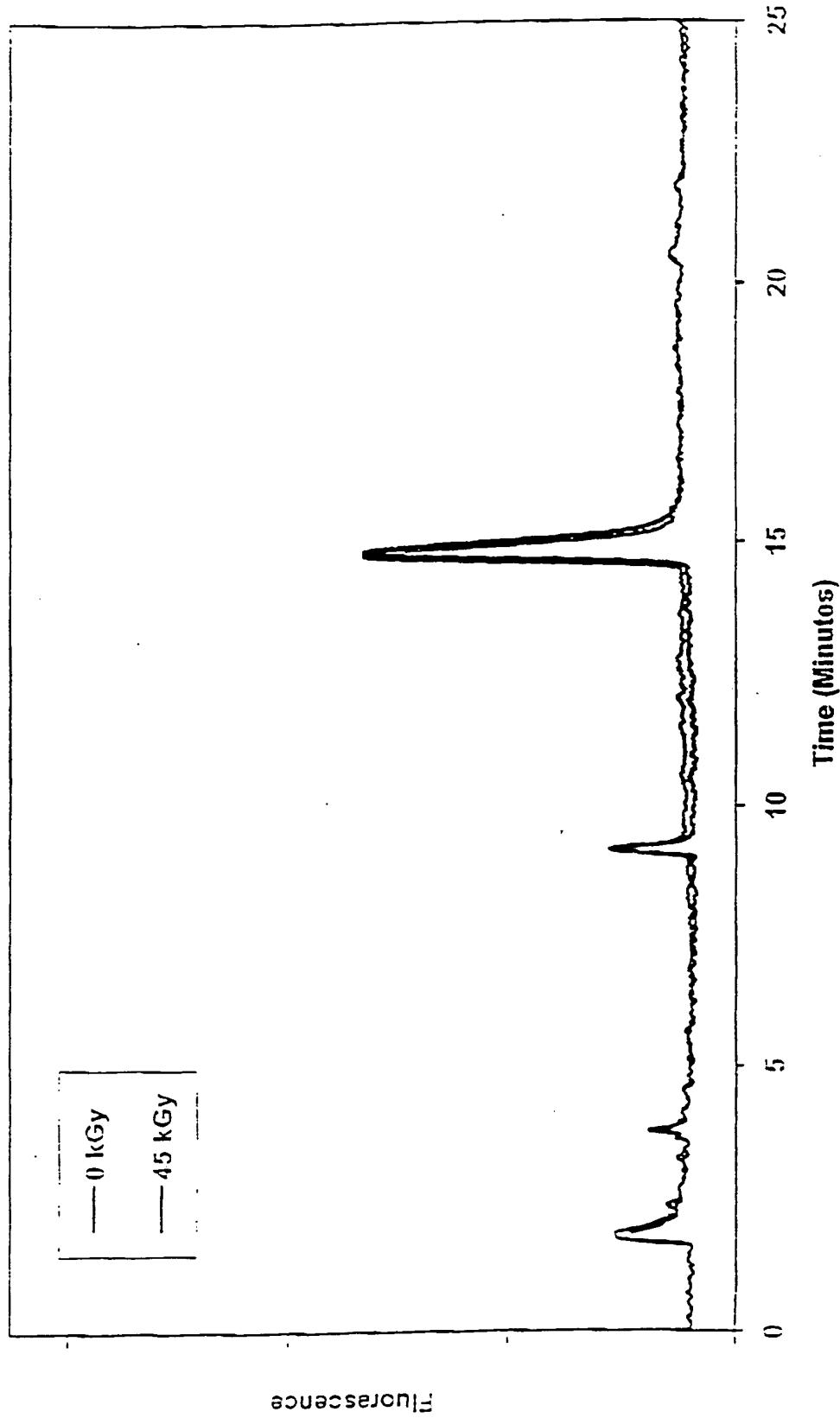
1. Molecular Weight Markers

2. Cryopreservative, 0 kGy
3. Cryopreservative, 30 kGy
4. PBS, 0 kGy
5. PBS, 30 kGy
6. 50% DMSO, 0 kGy
7. 50% DMSO, 30 kGy
8. 50% DMSO and Ascorbate, 0 kGy
9. 50% DMSO and Ascorbate, 30 kGy

1 2 3 4 5 6 7 8 9

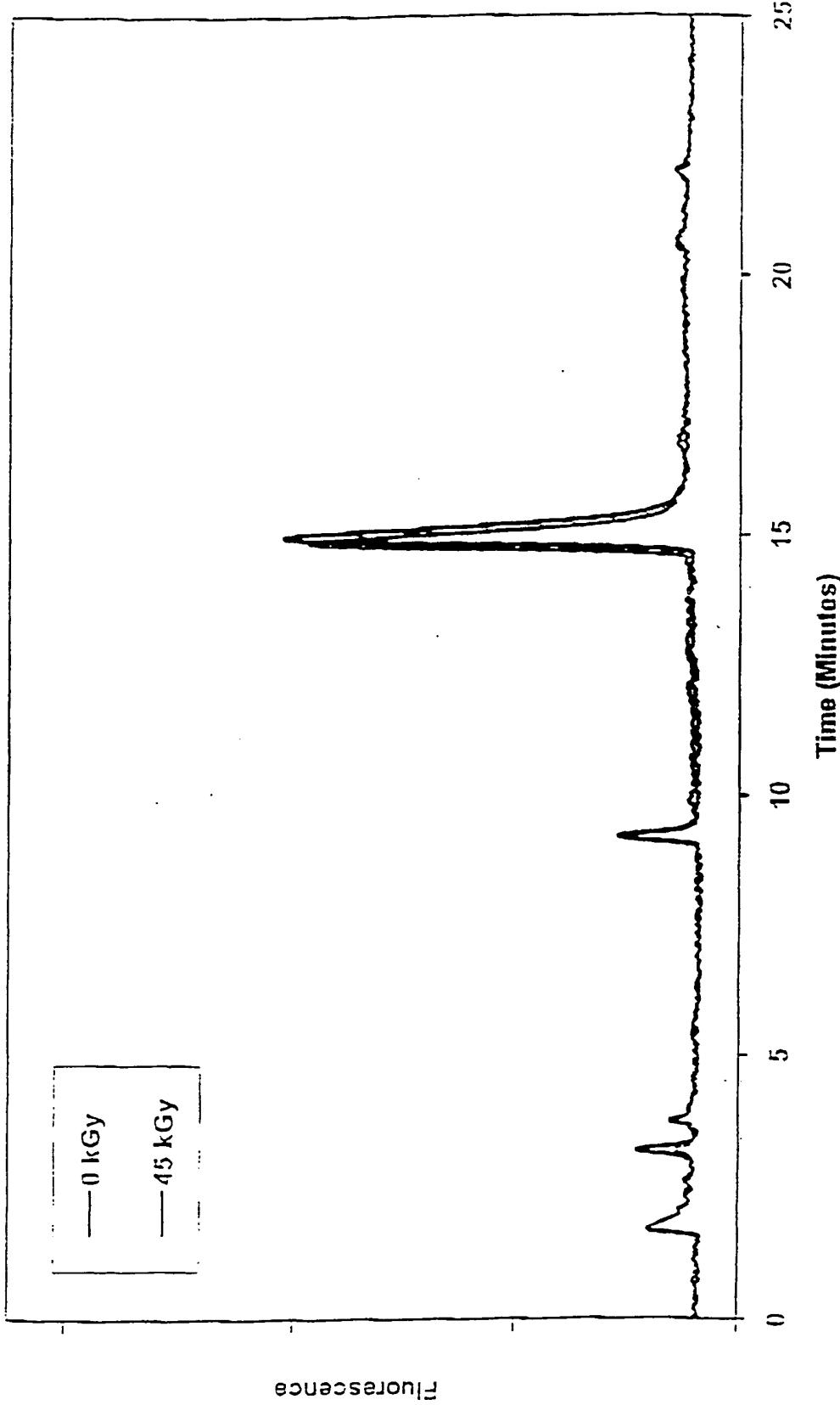
16E

Gamma Irradiation of Hydrolyzed Heart Valve Cusps
in the Presence of PBs

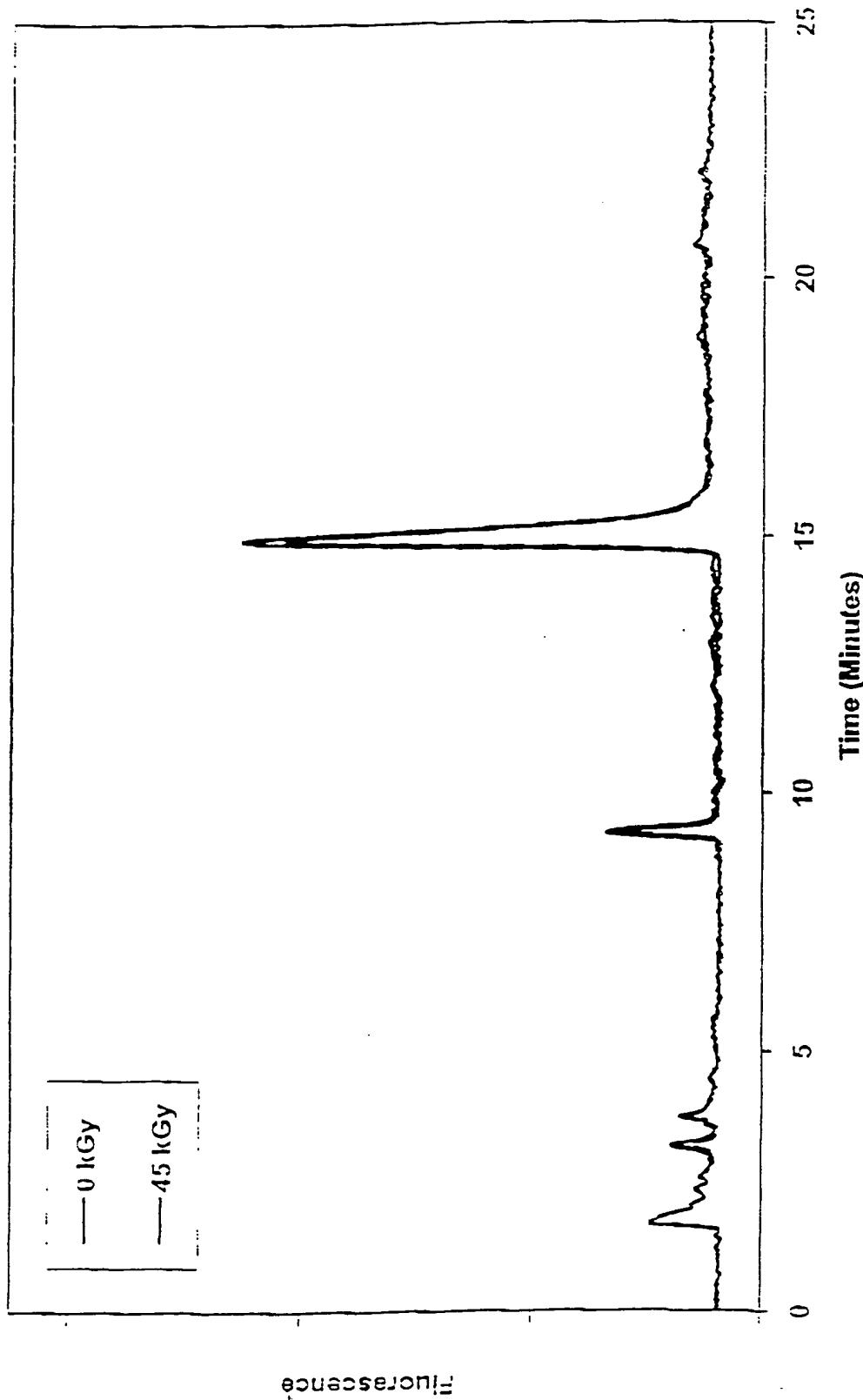


17A

Gamma Irradiation of Hydrolyzed Heart Valve Chusps
in the Presence of PBS and Ascorbate

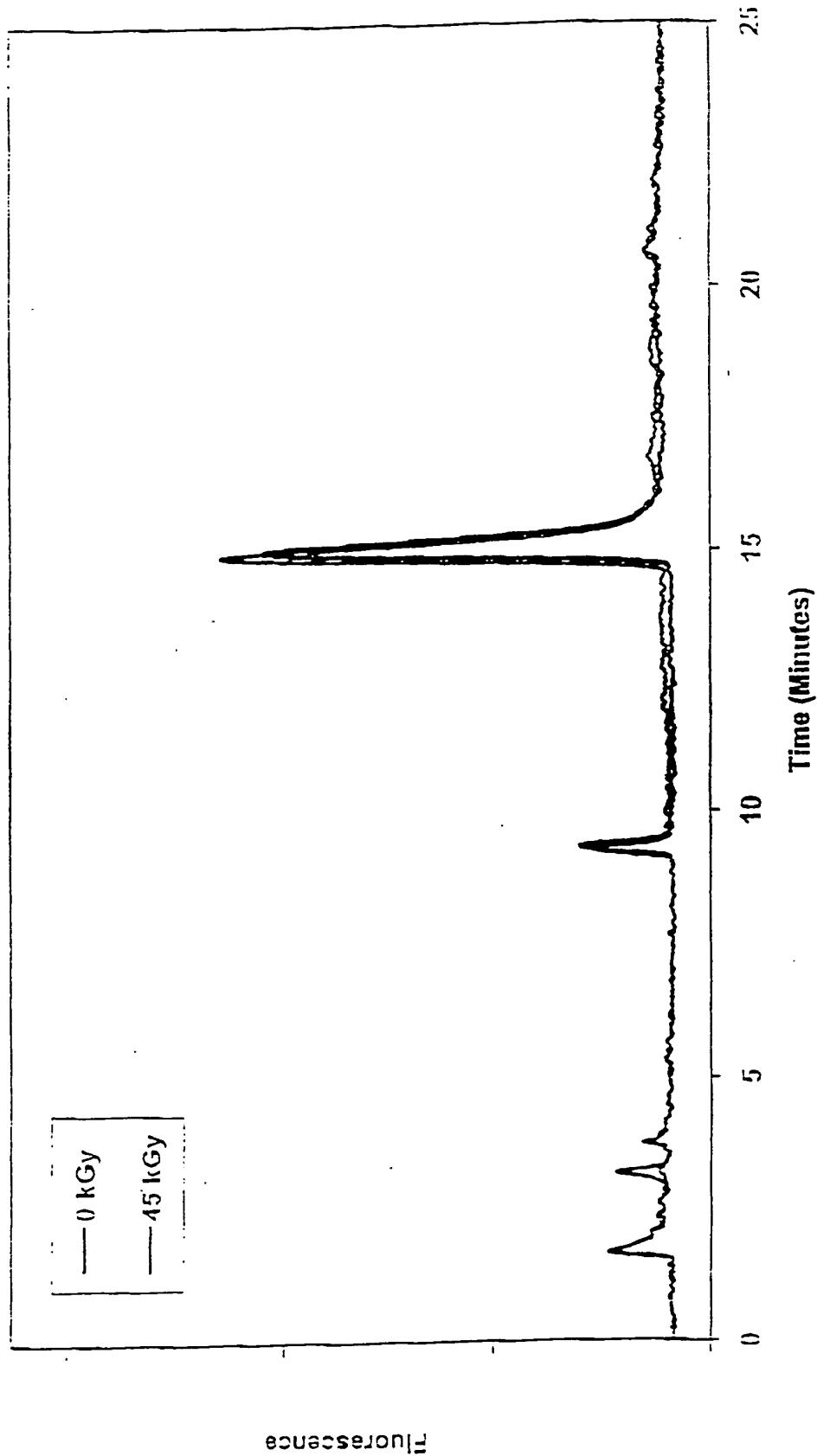


Gamma Irradiation of Hydrolyzed Heart Valve Cusps
in the Presence of PPG 400

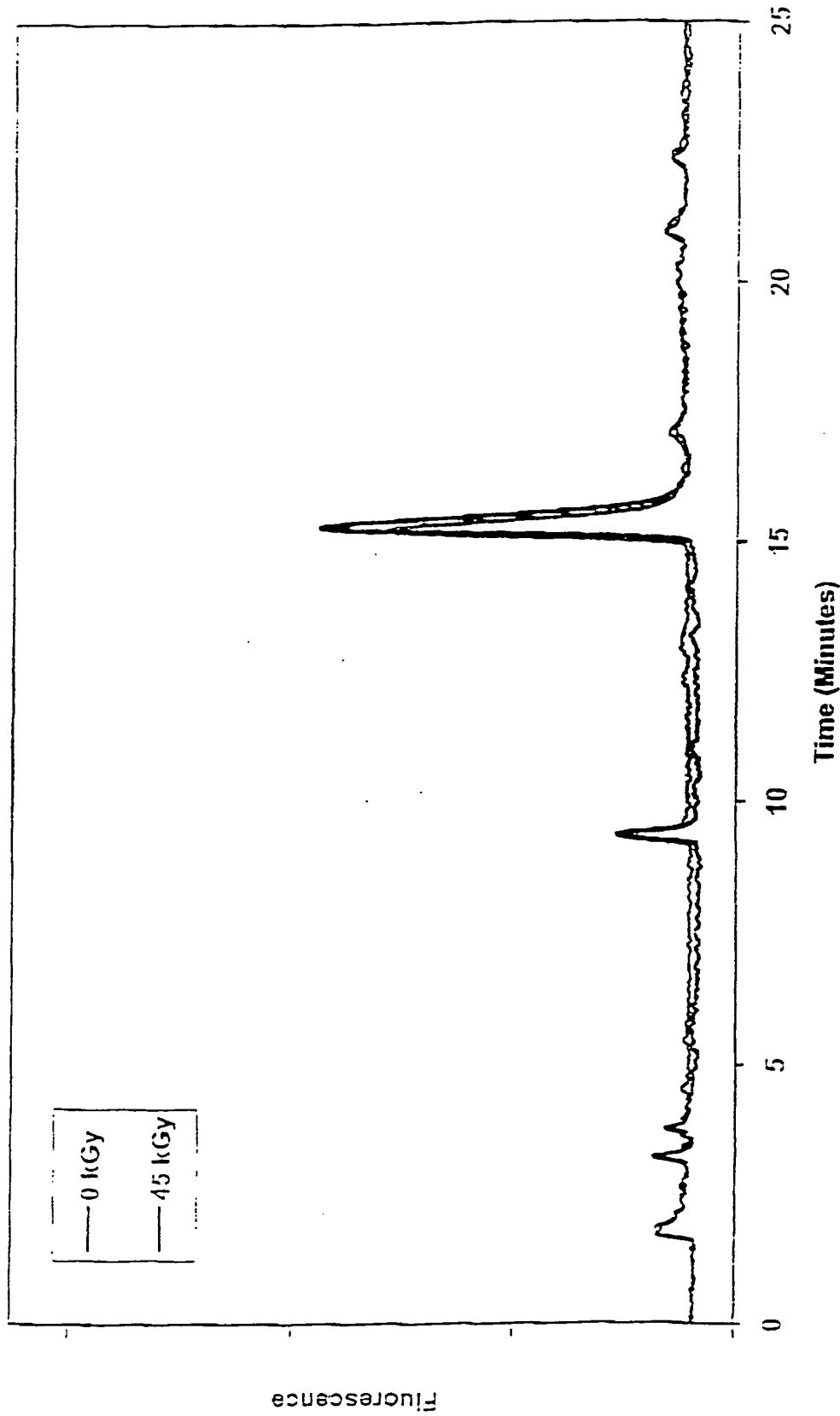


17C

Gamma Irradiation of Hydrolyzed Heart Valve Cusps Dehydrated with PPG 400 and Rehydrated in the Presence of PBS and Ascorbate



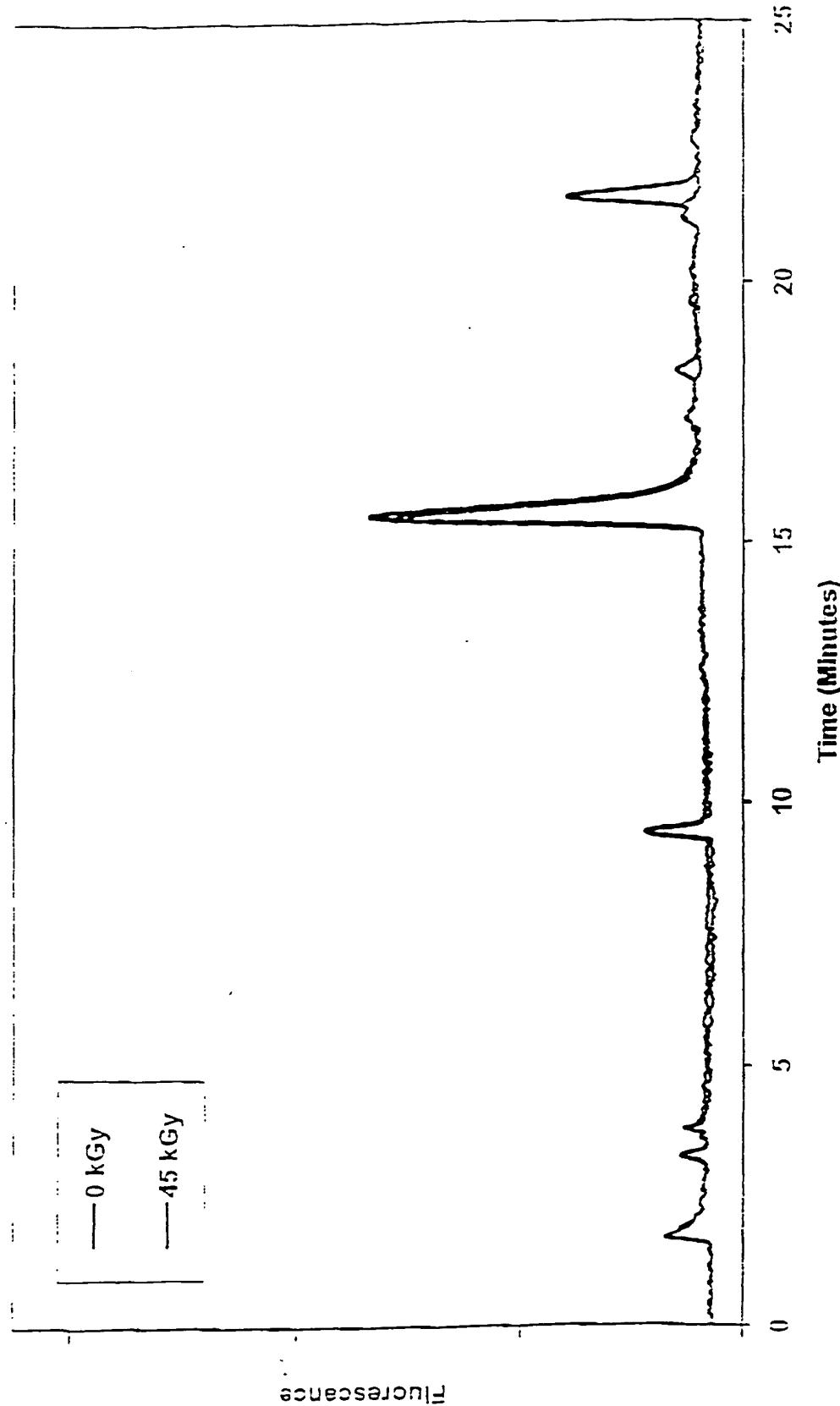
Gamma Irradiation of Hydrolyzed Heart Valve Cusps
in the Presence of 50% DMSO



Fluorescence

17E

Gamma Irradiation of Hydrolyzed Heart Valve Cusps
in the Presence of 50% DMSO and Ascorbate



17F

Gamma Irradiation of Porcine Heart Valve Cusps in the Presence of Various Solvents

1. Molecular Weight Markers

2. PBS, 0 kGy

3. PBS, 45 kGy

4. PBS and Ascorbate, 0 kGy

5. PBS and Ascorbate, 45 kGy

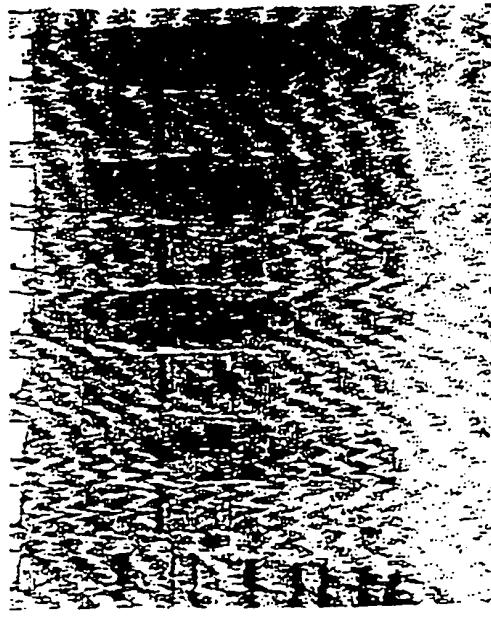
6. PPG400, 0 kGy

7. PPG400, 45 kGy

1 2 3 4 5 6 7 8 9

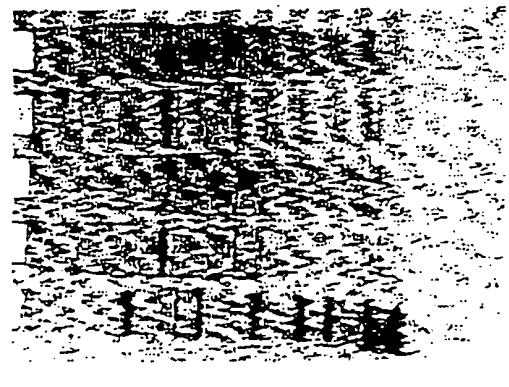
8. Dehydrated in PPG400 and Rehydrated
with PBS and Ascorbate, 0 kGy

9. Dehydrated in PPG400 and Rehydrated
with PBS and Ascorbate, 45 kGy



176

Gamma Irradiation of Porcine Heart Valve Cusps in the Presence of Various Solvents



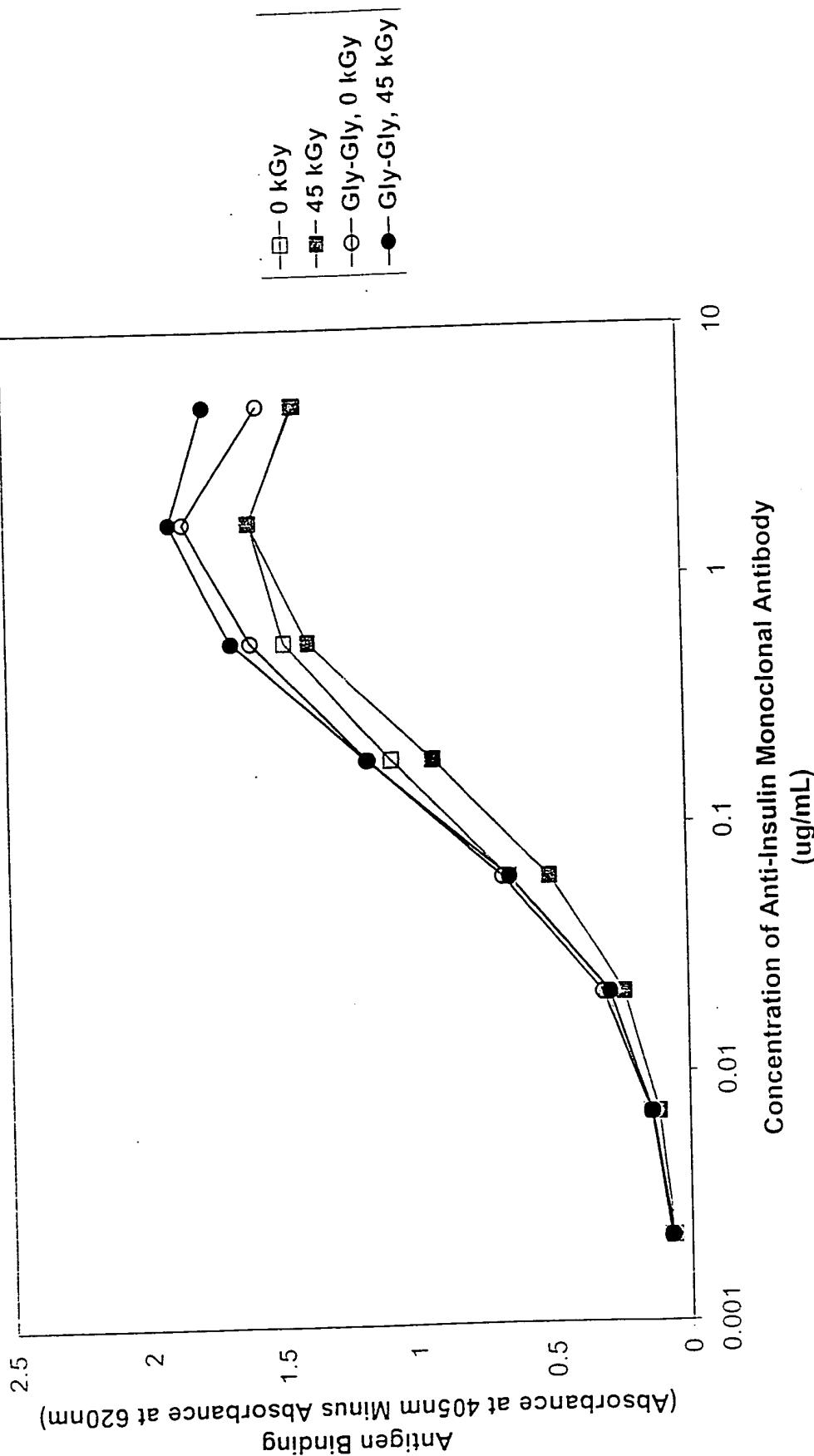
1. Molecular Weight Markers

- 205
- 119
- 98
- 52.3
- 36.8
- 30.1
- 22
- 7.6

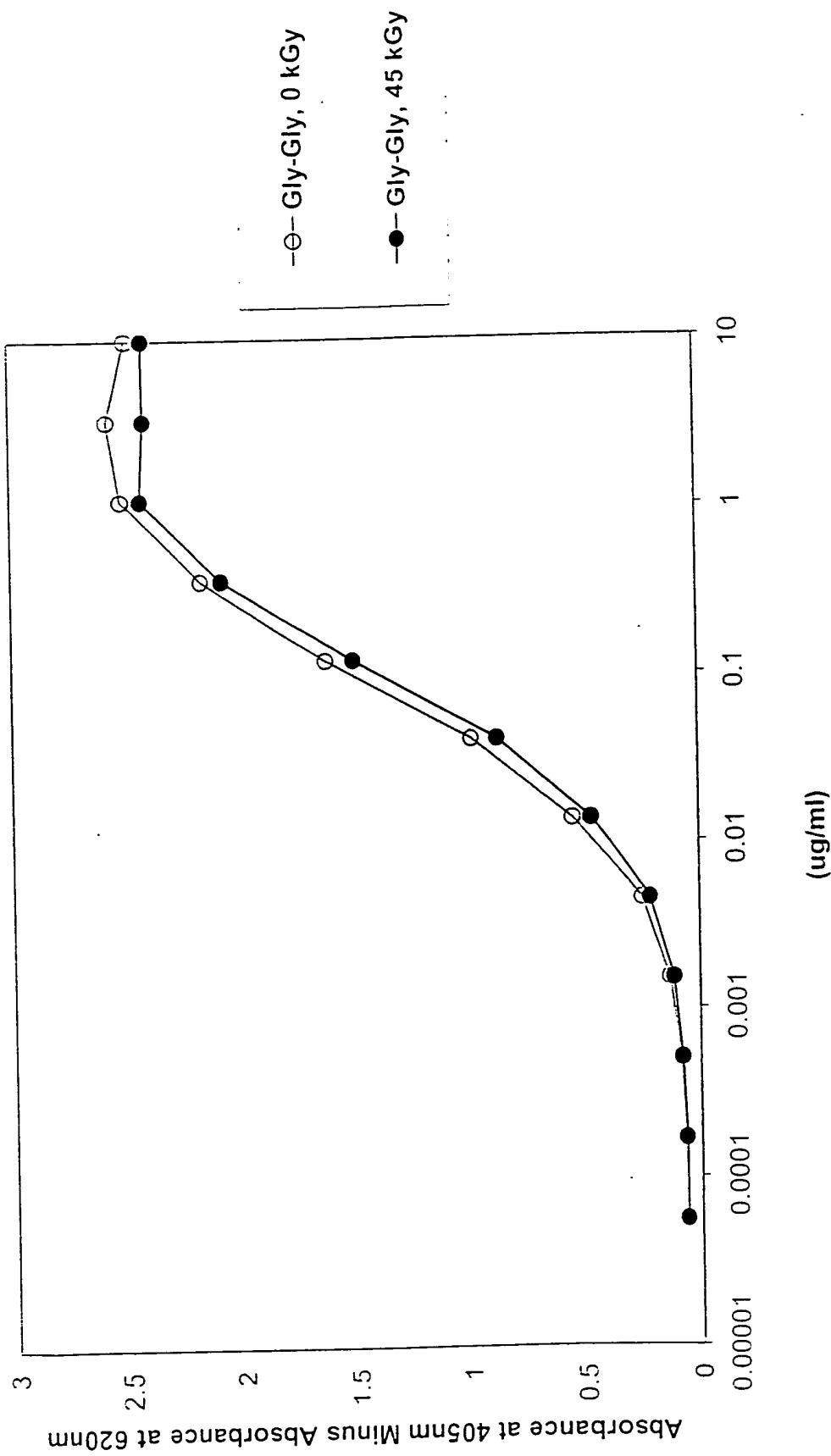
2. 50% DMSO, 0 kGy
3. 50% DMSO, 45 kGy
4. 50% DMSO and Ascorbate, 0 kGy
5. 50% DMSO and Ascorbate, 45 kGy

1 2 3 4 5

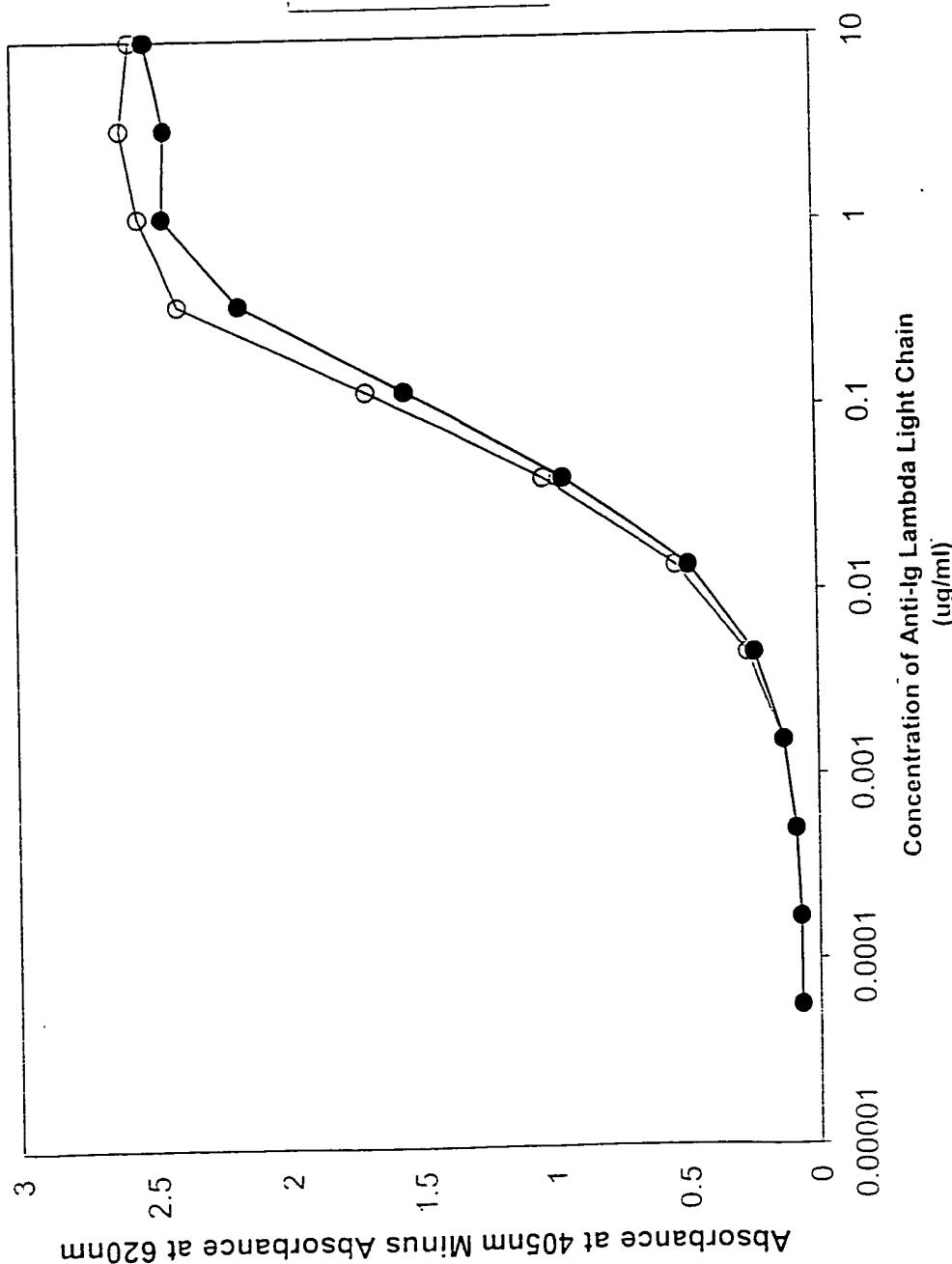
(74)



Gamma Irradiation of Freeze-Dried Anti-Human Ig, Lambda Light Chain, in the Presence or Absence of 20 mM Gly-Gly

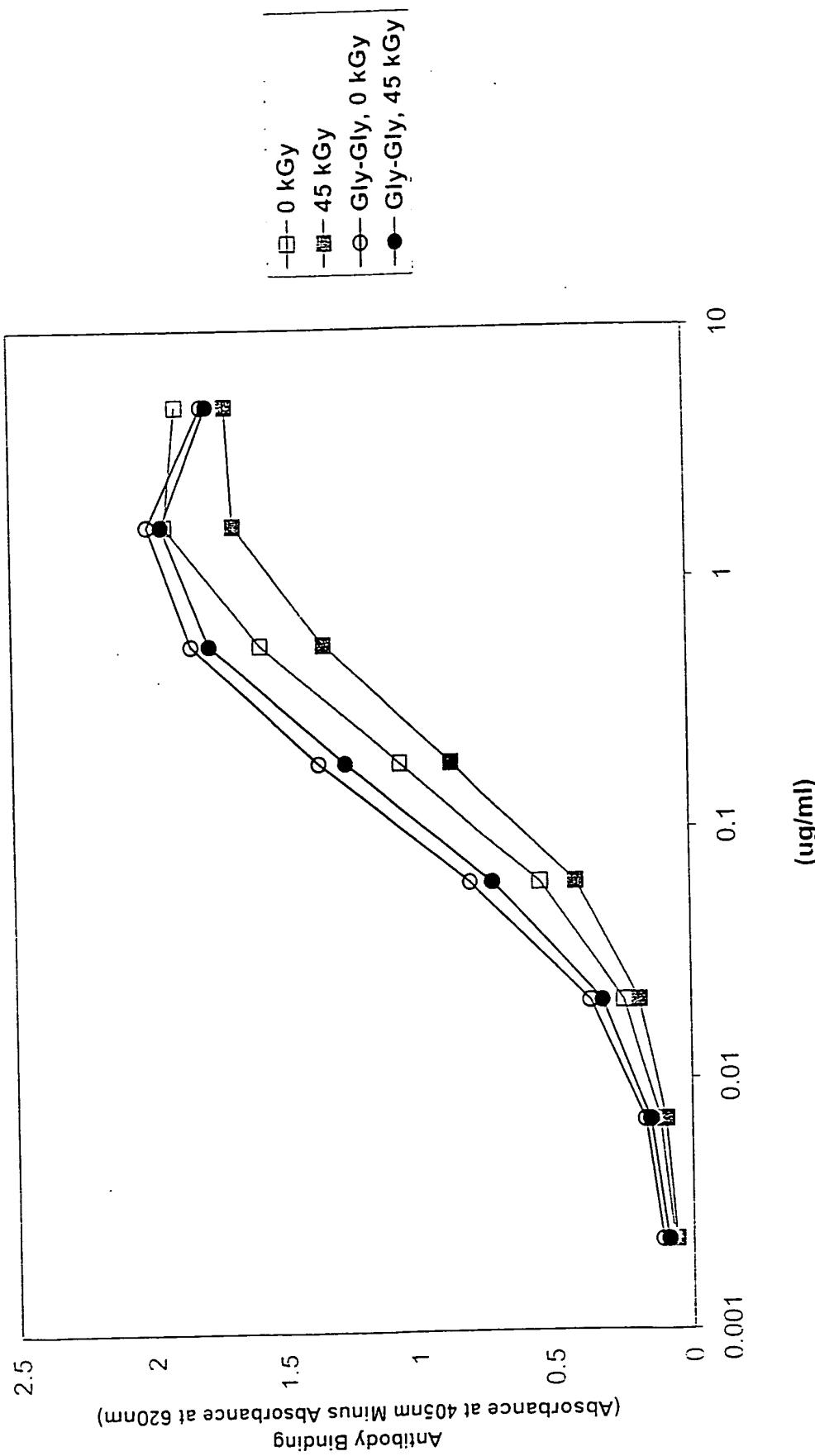


Gamma Irradiation of Freeze-Dried Anti-Human Ig, Lambda Light Chain, in the
Presence or Absence of 20 mM Ascorbate and 20 mM Gly-Gly

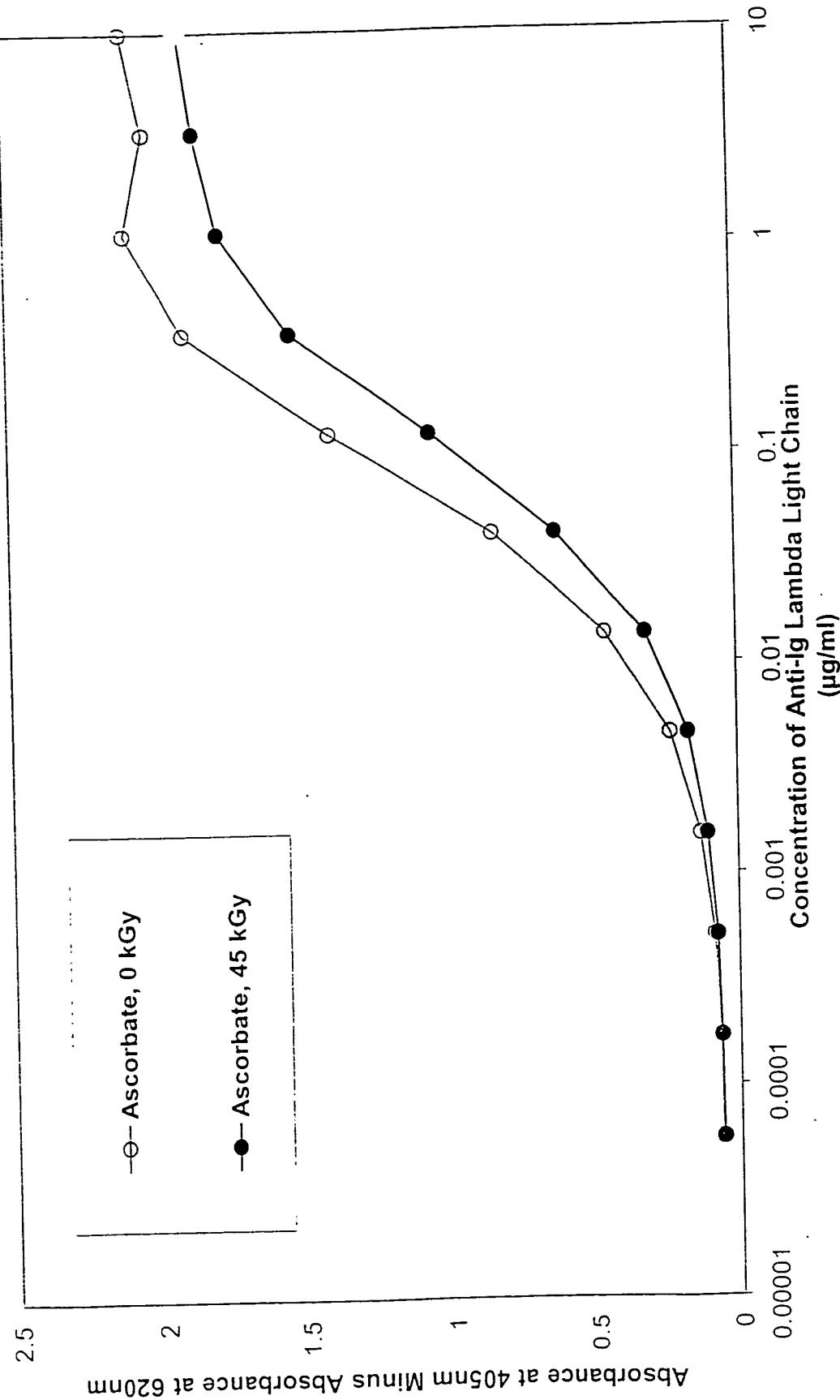


18C

Gamma Irradiation of Freeze-Dried Anti-Insulin Monoclonal Antibody in the
Presence or Absence of 20 mM Gly-Gly (and 1% BSA)

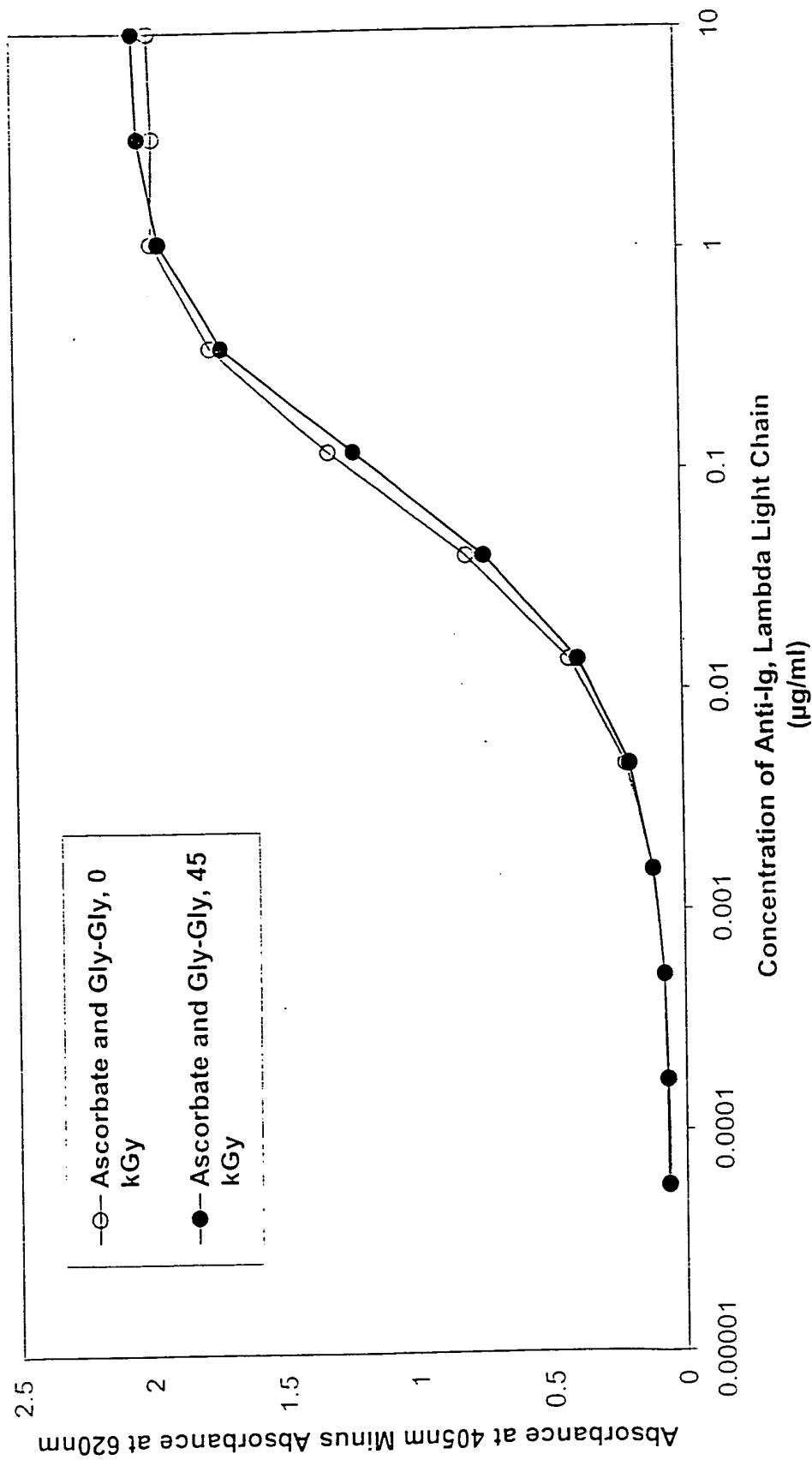


Gamma Irradiation of Liquid Anti-Human Ig, Lambda Light Chain in the
Presence or Absence of 200mM Ascorbate



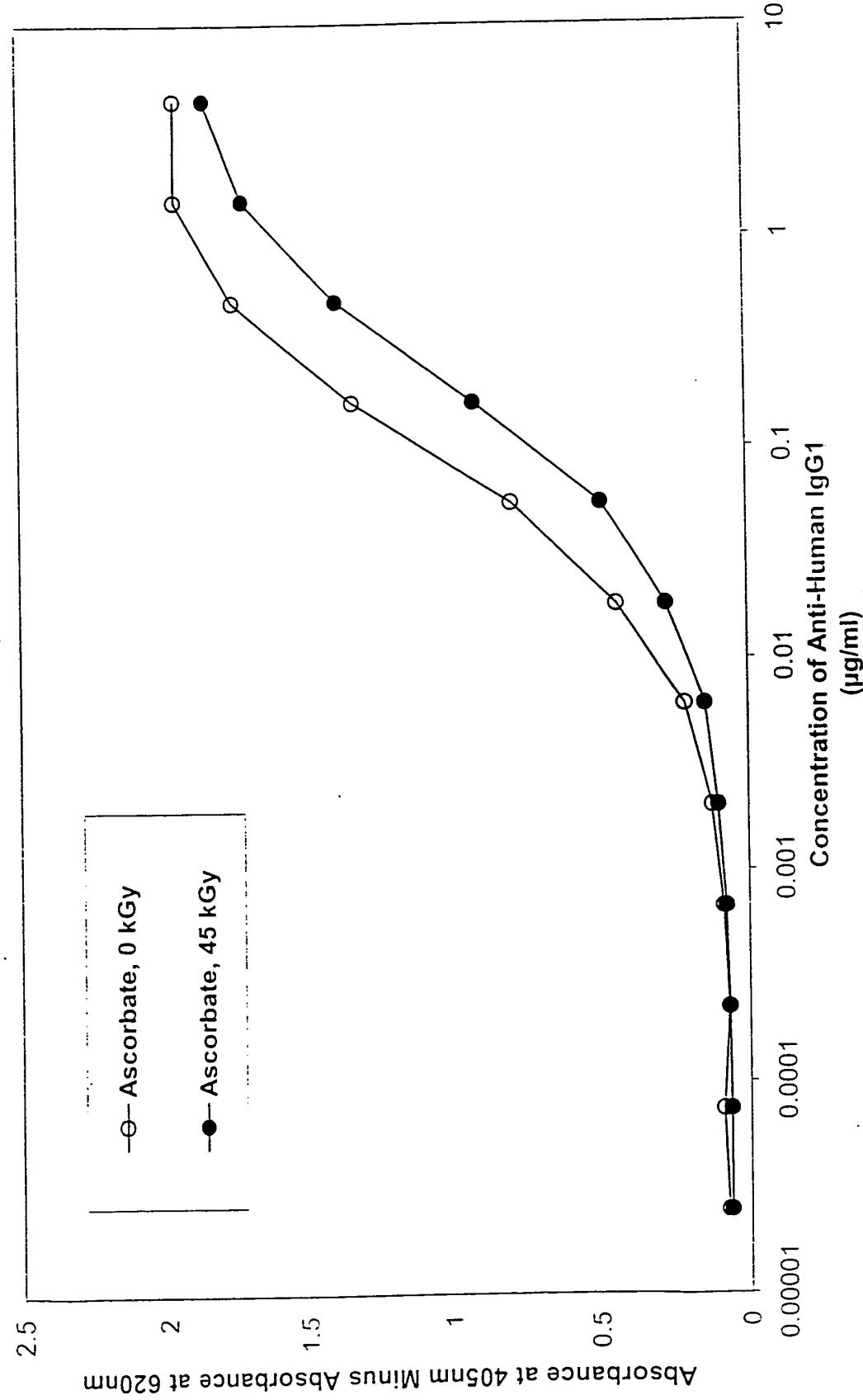
193

Gamma Irradiation of Liquid Anti-Human Ig, Lambda Light Chain in the
Presence or Absence of 200mM Ascorbate and 200mM Gly-Gly



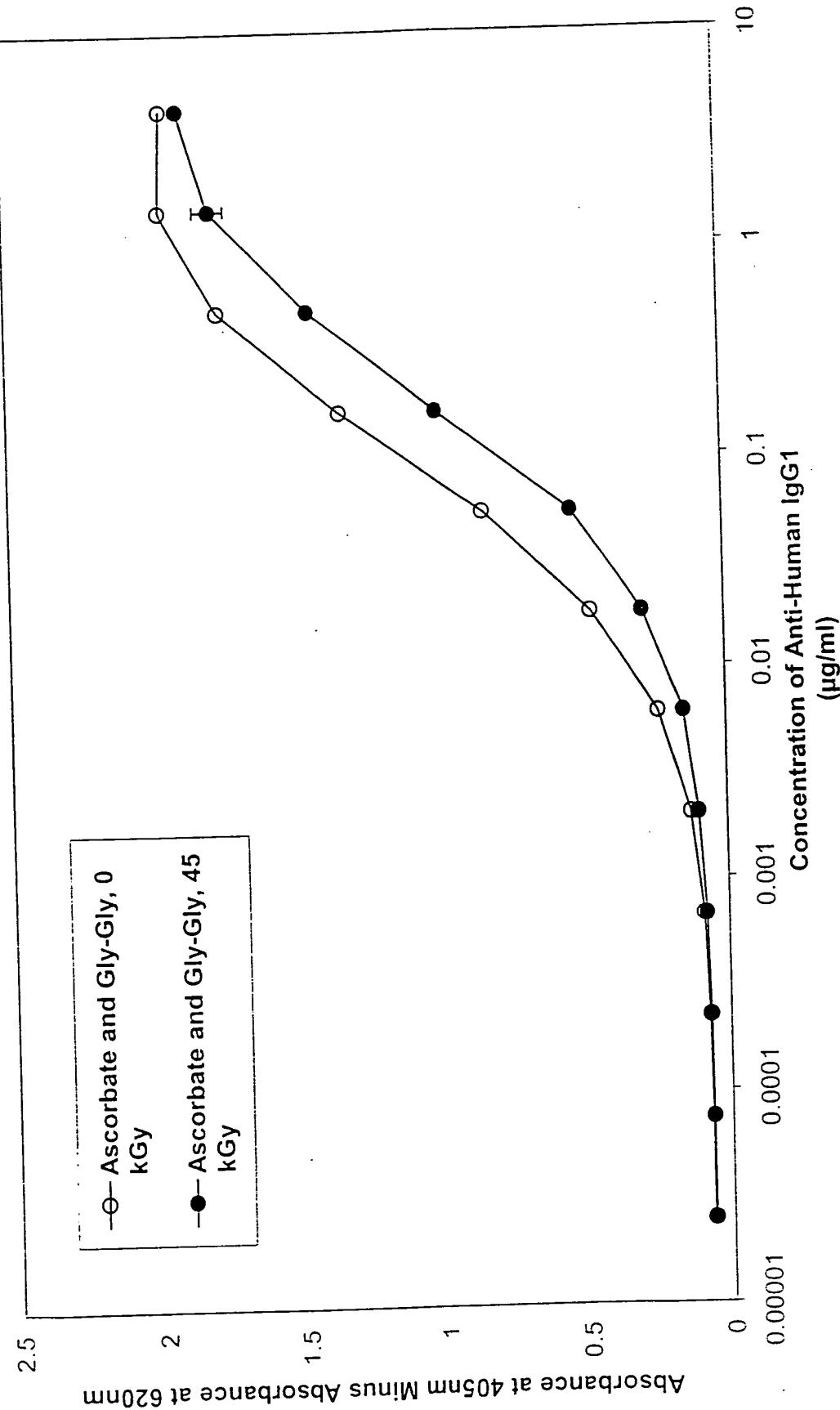
19C

Gamma Irradiation of Liquid Anti-Human IgG1 in the Presence of 200mM
Ascorbate

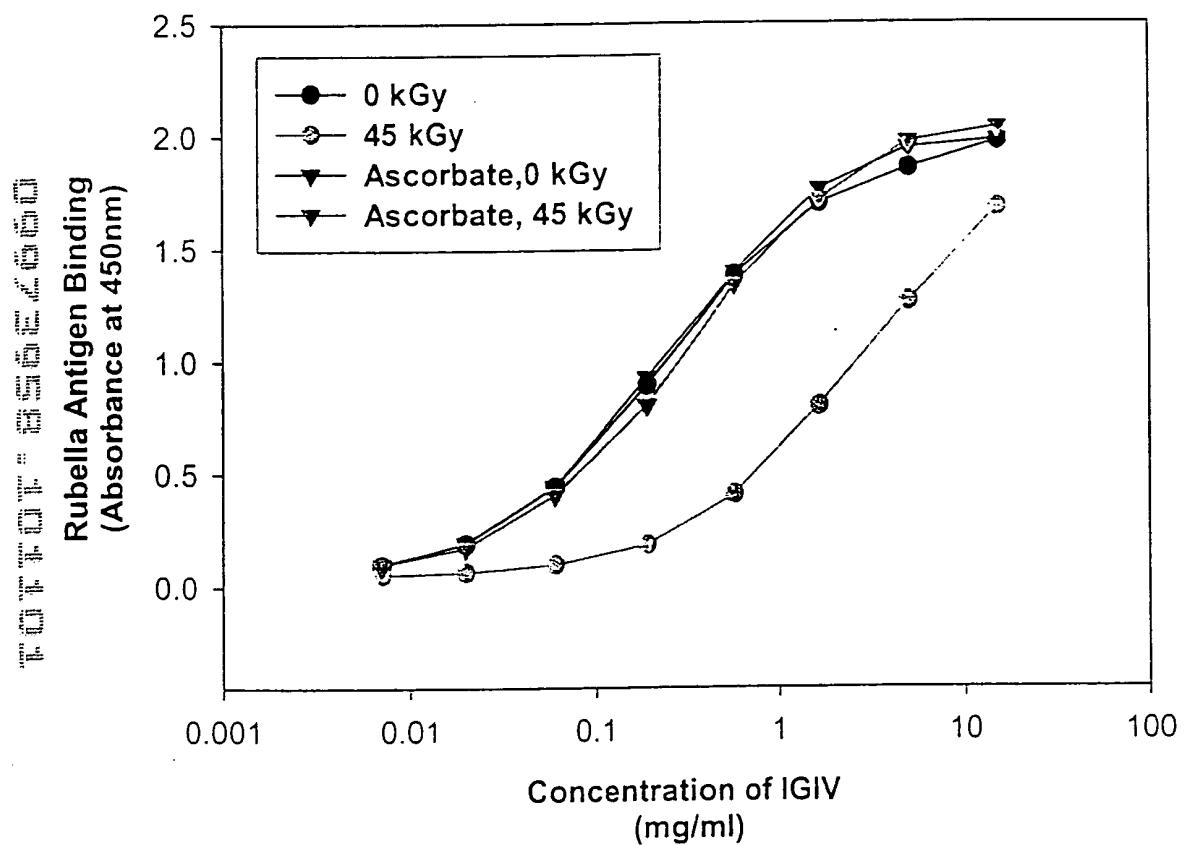


(9D)

Gamma Irradiation of Liquid Anti-Human IgG1 in the Presence of 200mM
Ascorbate and 200mM Gly-Gly

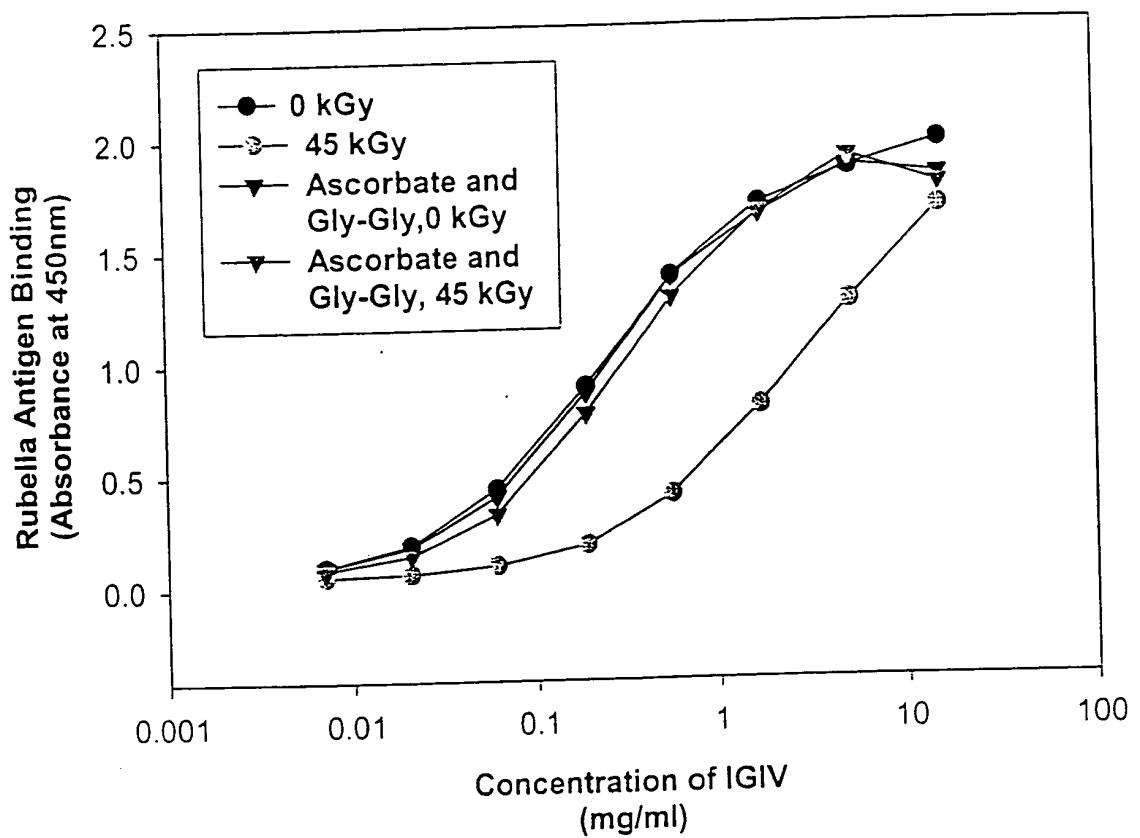


Gamma Irradiation of Liquid
IGIV in the Presence or Absence of 200 mM Ascorbate
Using Rubella IgG Assay



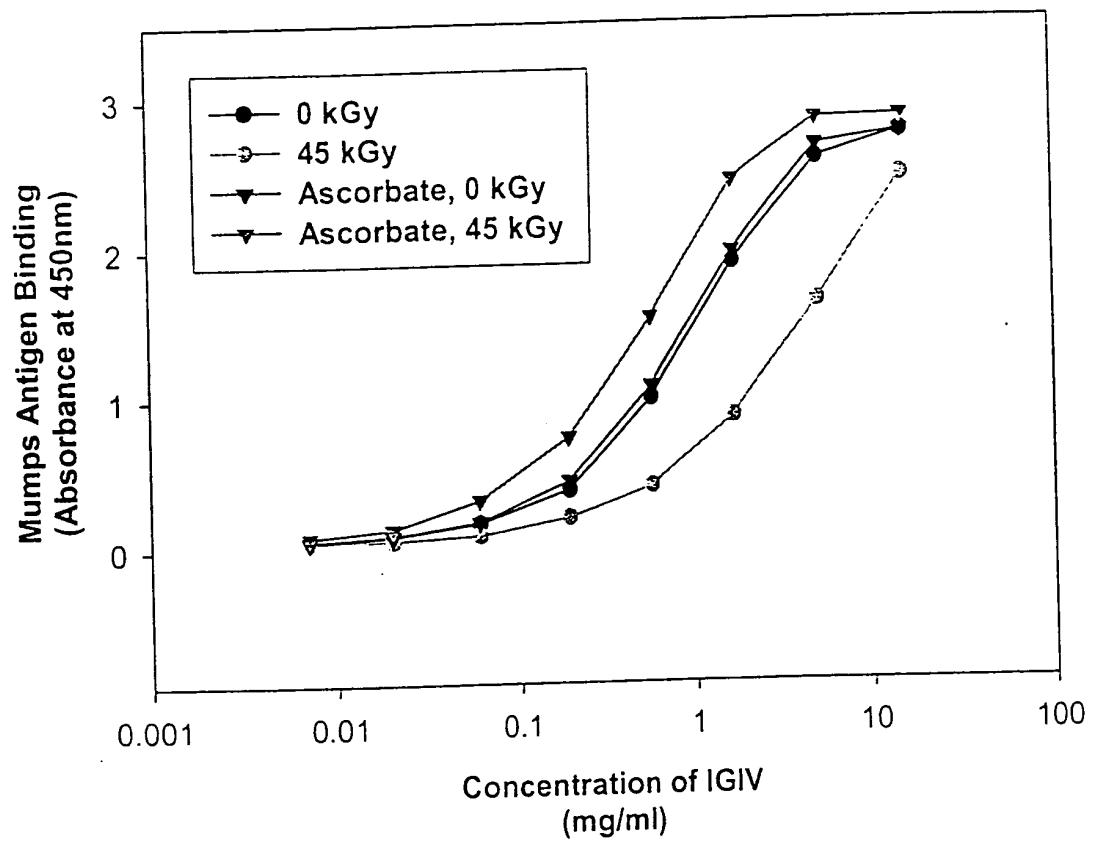
20A

Gamma Irradiation of Liquid
IGIV in the Presence or Absence of 200 mM Ascorbate and
200 mM Gly-Gly Using Rubella IgG Assay



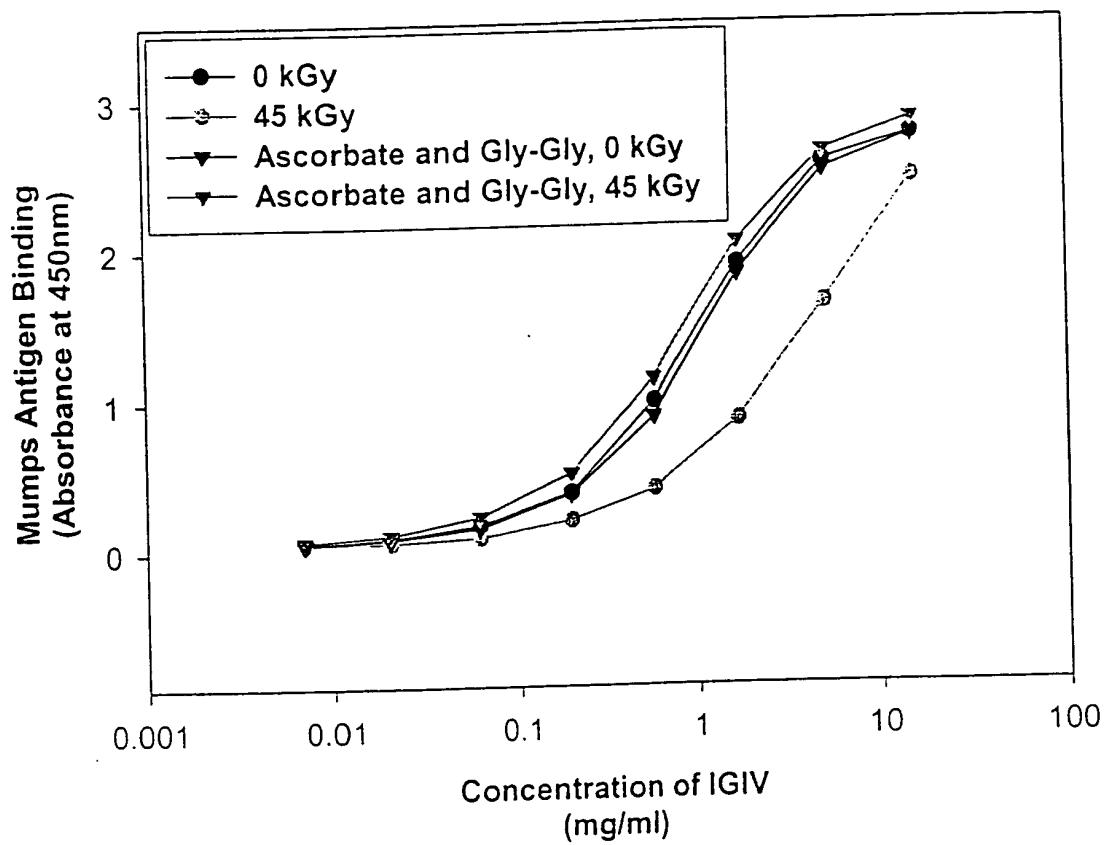
20B

Gamma Irradiation of Liquid
IGIV in the Presence or Absence of 200 mM Ascorbate
Using Mumps Assay



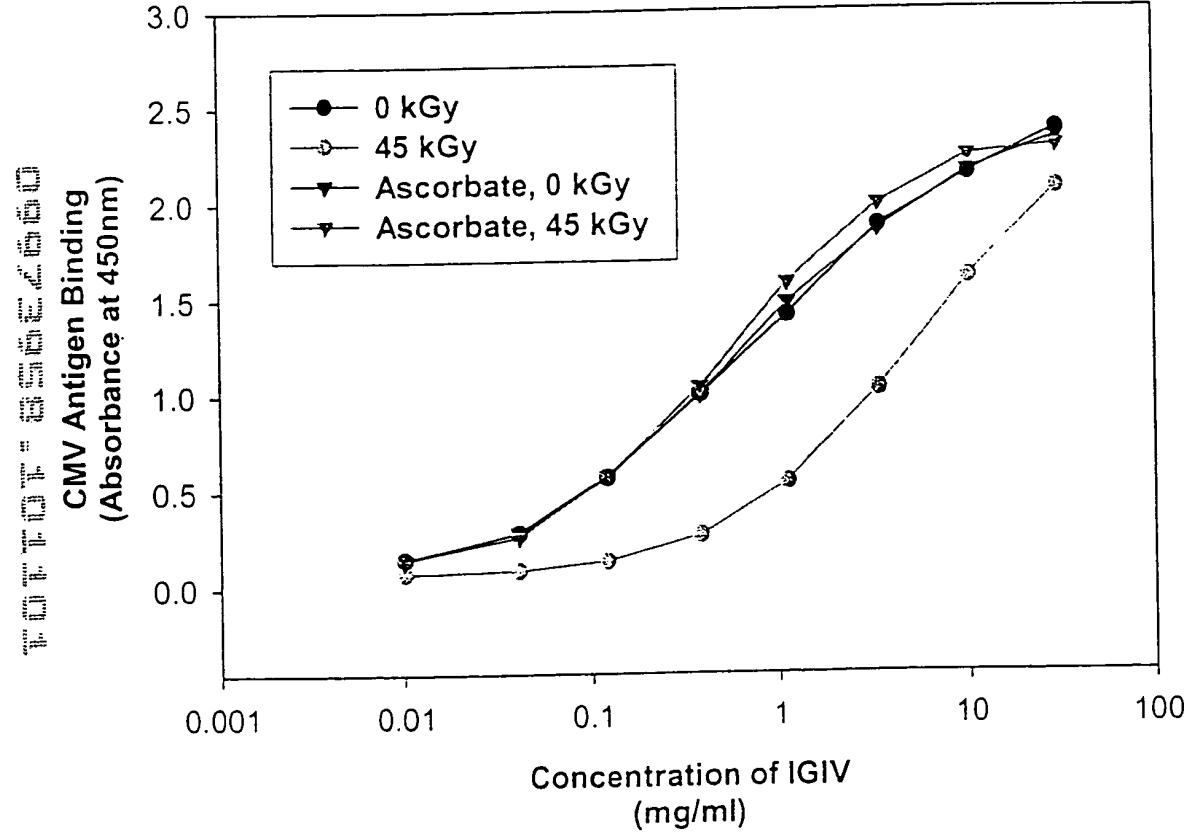
20C

Gamma Irradiation of Liquid
IGIV in the Presence or Absence of 200 mM Ascorbate
and 200 mM Gly-Gly Using Mumps Assay



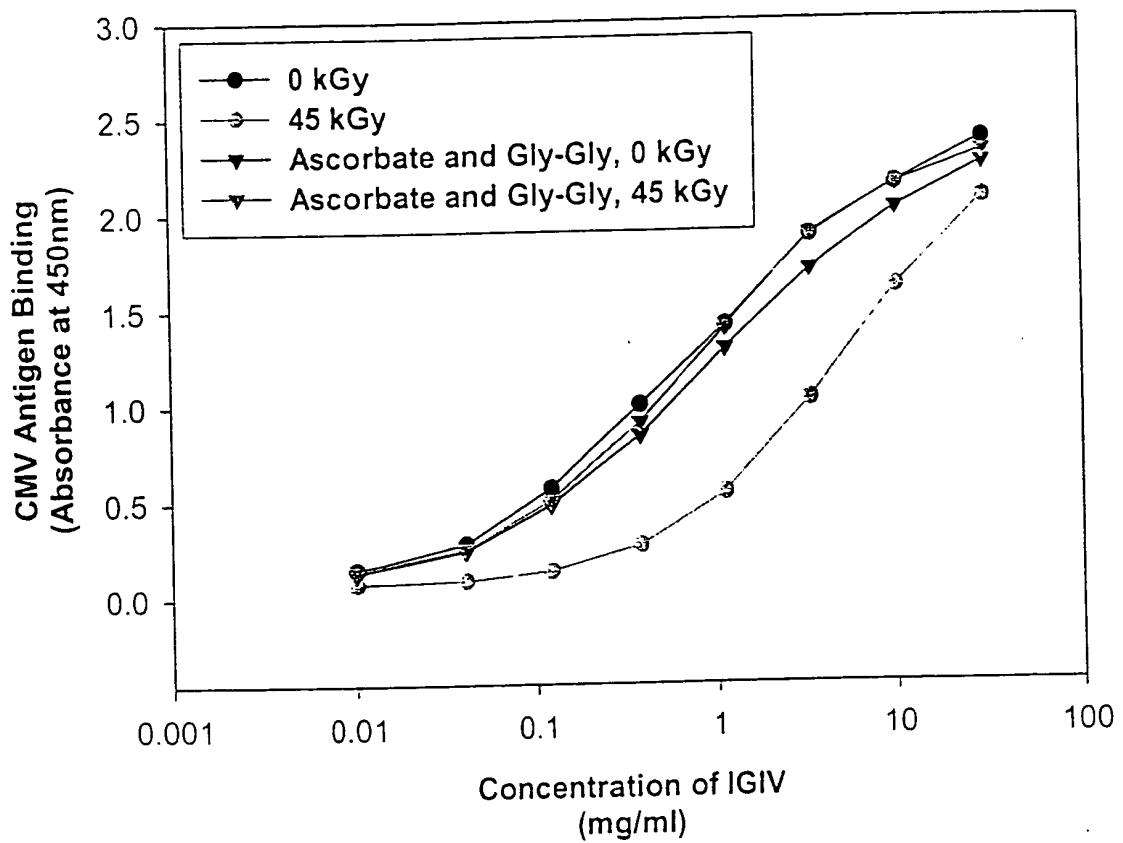
20D

Gamma Irradiation of Liquid
IGIV in the Presence or Absence of 200 mM Ascorbate
Using CMV Assay



20E

Gamma Irradiation of Liquid
IGIV in the Presence or Absence of 200 mM Ascorbate
and 200 mM Gly-Gly Using CMV Assay

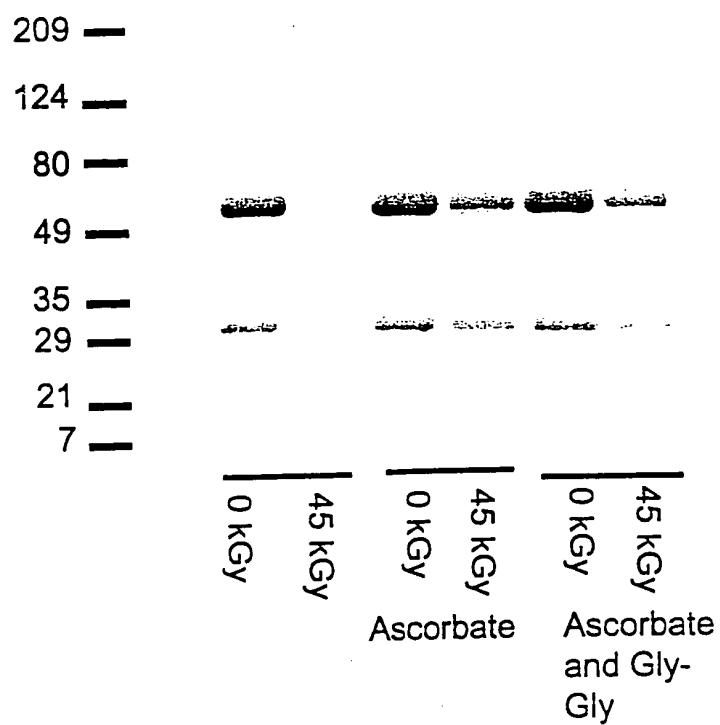


20F

SDS-PAGE of
Liquid IgIV

Liquid IgIV, Reduced 5-15%

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100

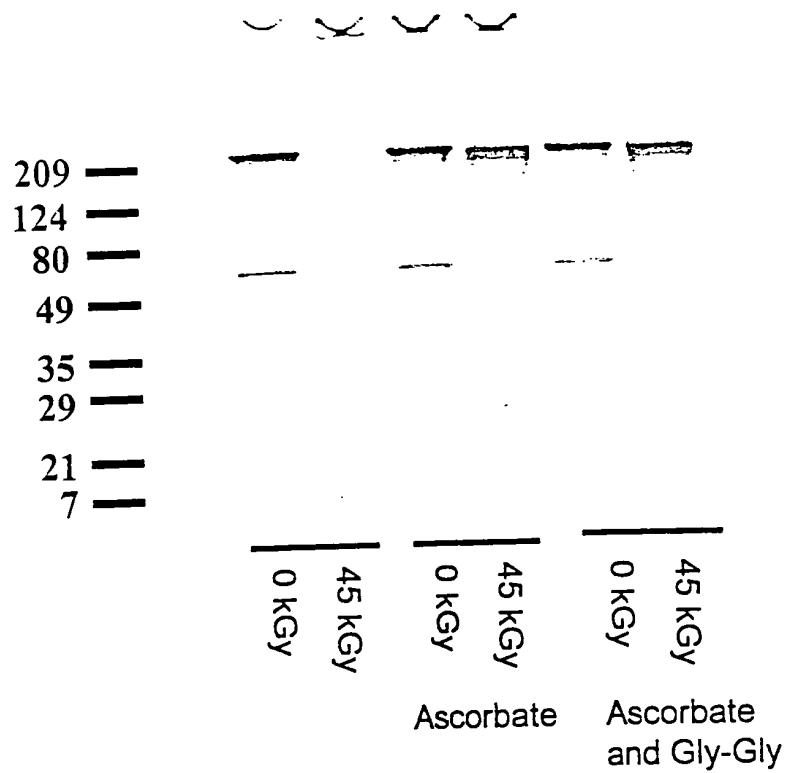


20G

SDS-PAGE of
Liquid IgIV

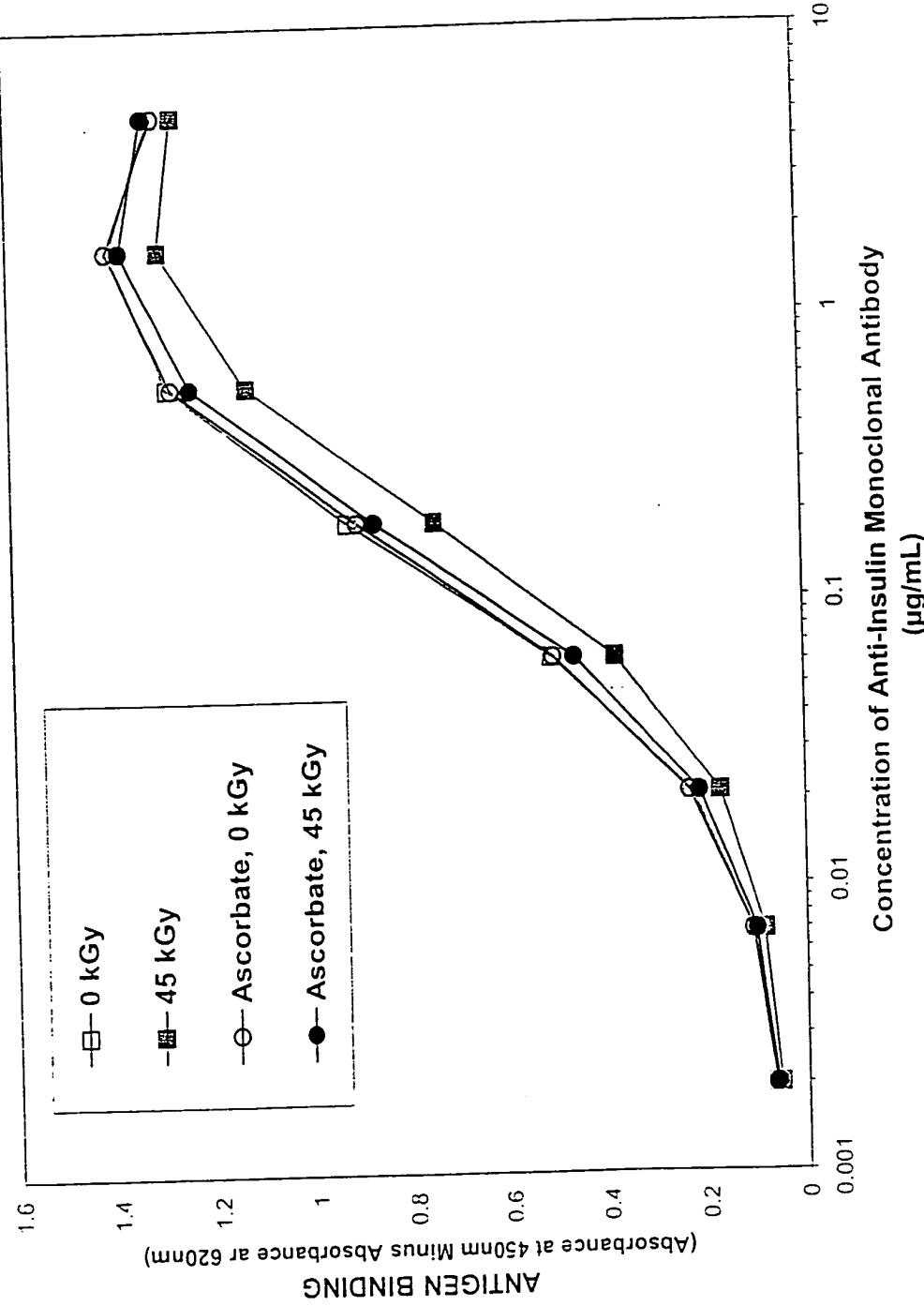
Liquid IgIV, Non-Reduced 5-15%

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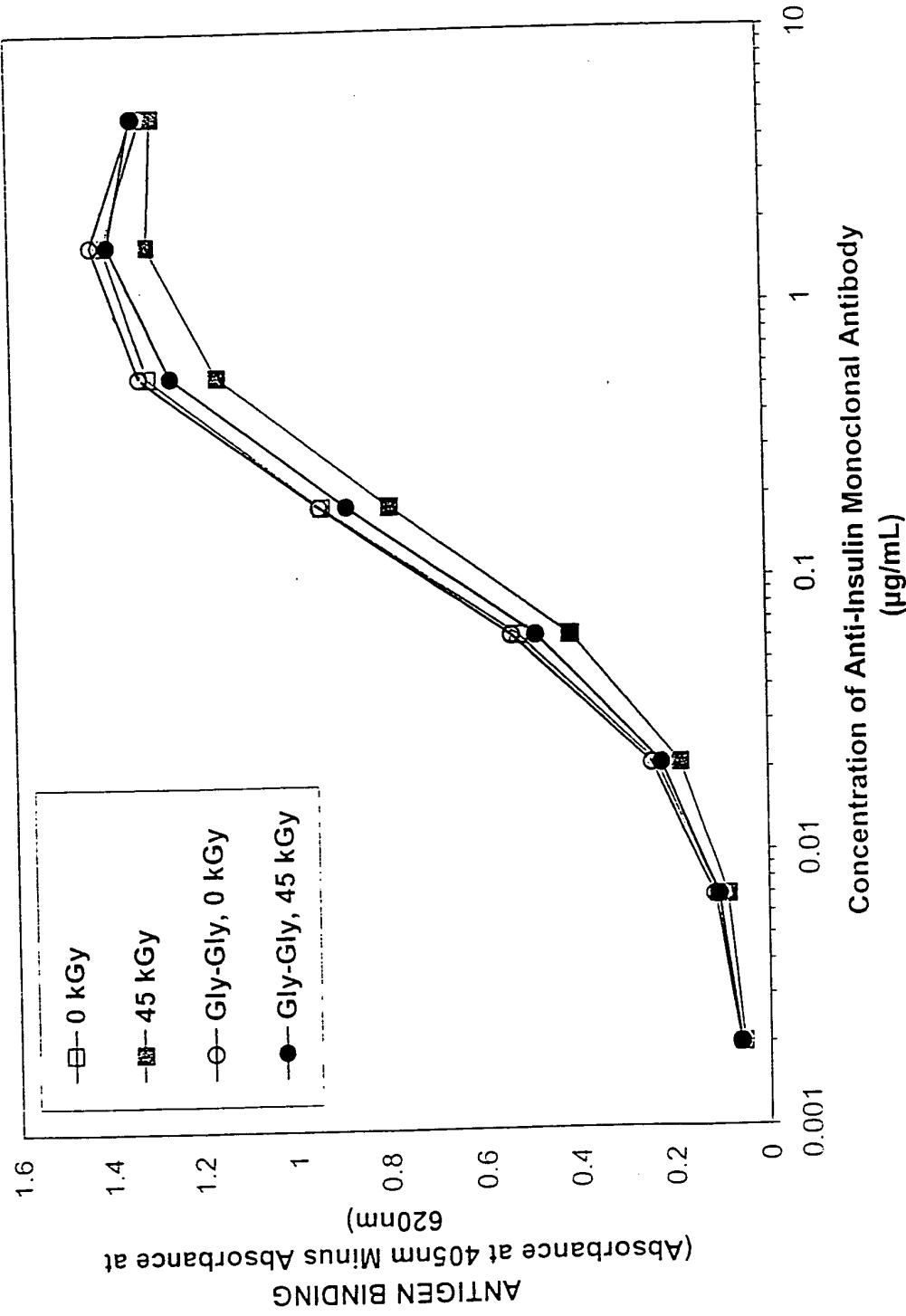


20H

Gamma Irradiation of Freeze-Dried Anti-Insulin Monoclonal Antibody at a High Dose Rate (30 kGy/h) in the Presence or Absence of 20 mM Ascorbate

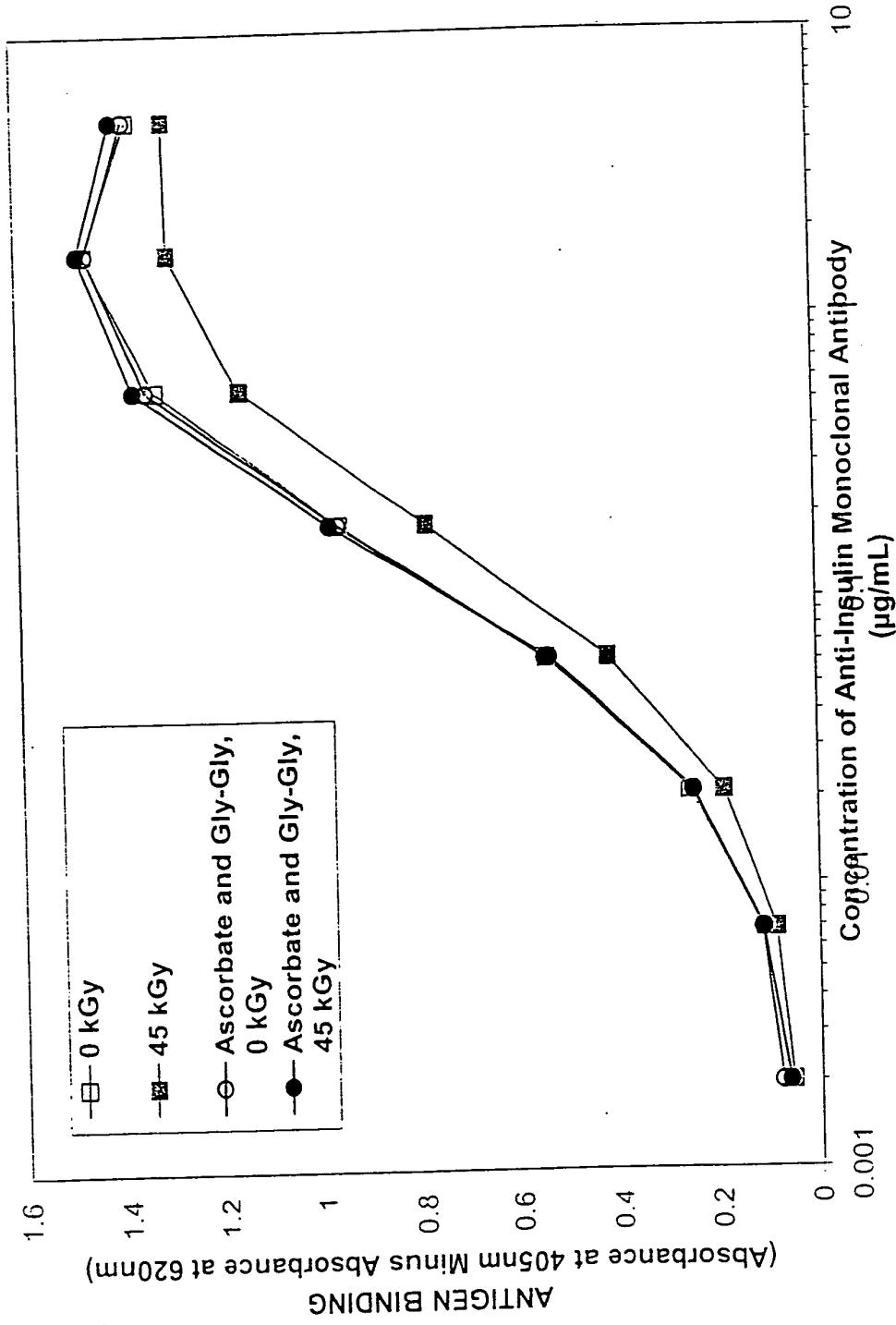


Gamma Irradiation of Freeze-Dried Anti-Insulin Monoclonal Antibody at a High Dose Rate (30 kGy/h) in the Presence or Absence of 20 mM Gly-Gly



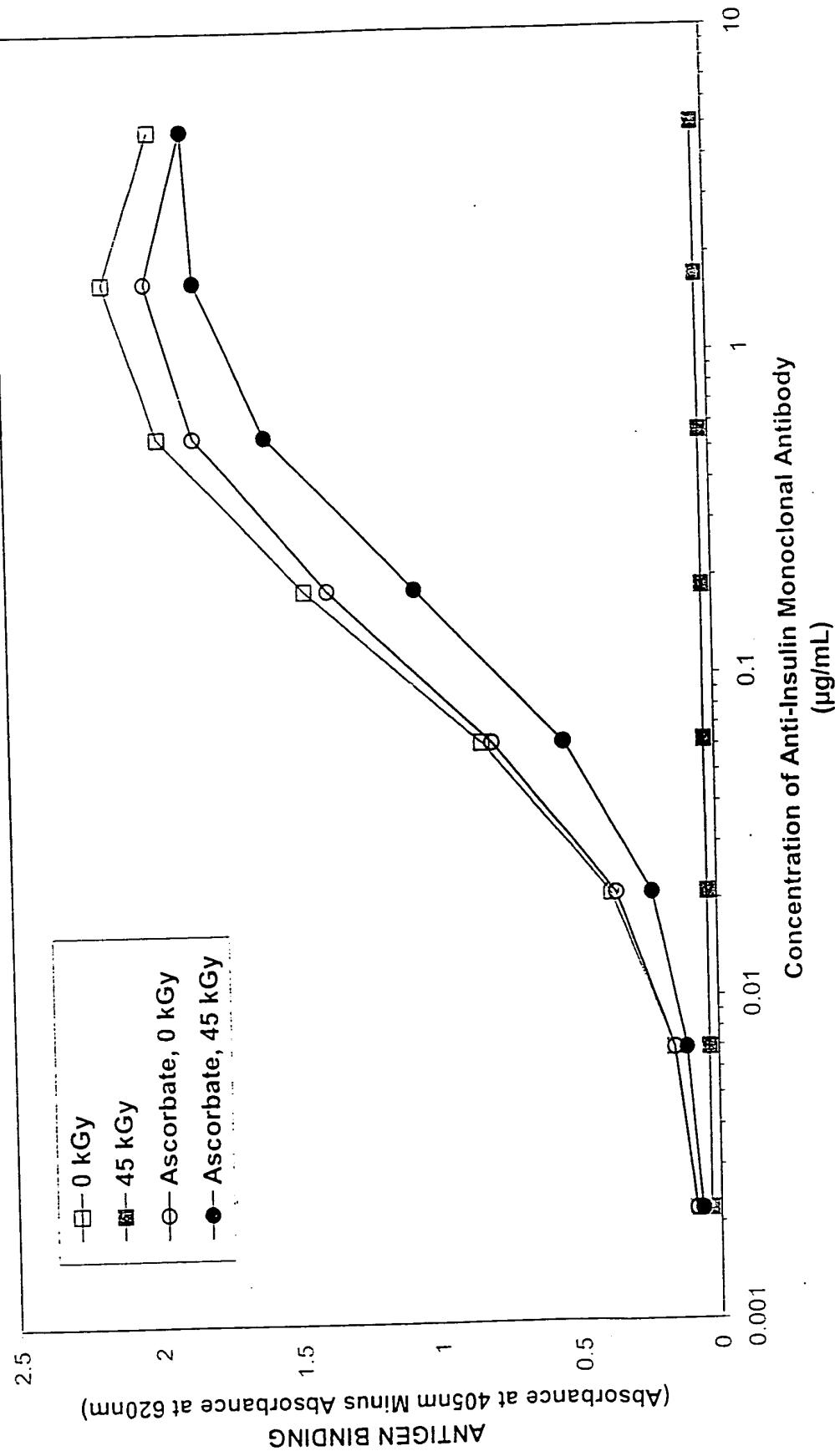
21B

Gamma Irradiation of Freeze-Dried Anti-Insulin Monoclonal Antibody at a High Dose Rate 30 kGy/h in the Presence or Absence of 20 mM Ascorbate and 20 mM Gly-Gly



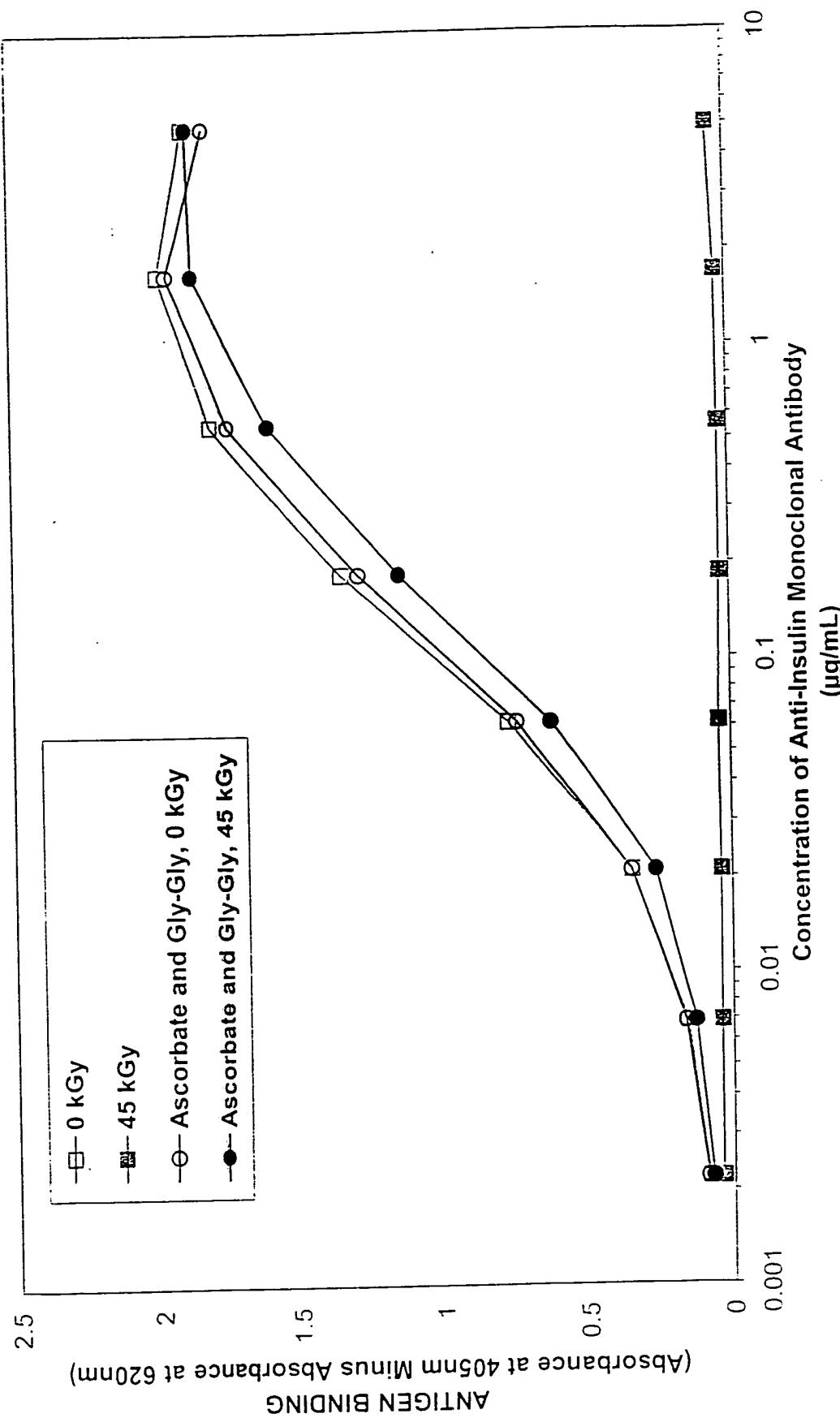
21C

Gamma Irradiation of Anti-Insulin Monoclonal Antibody in the
Presence or Absence of 200 mM Ascorbate



22A

Gamma Irradiation of Anti-Insulin Monoclonal Antibody in the
Presence or Absence of 200 mM Ascorbate and 200 mM Gly-Gly

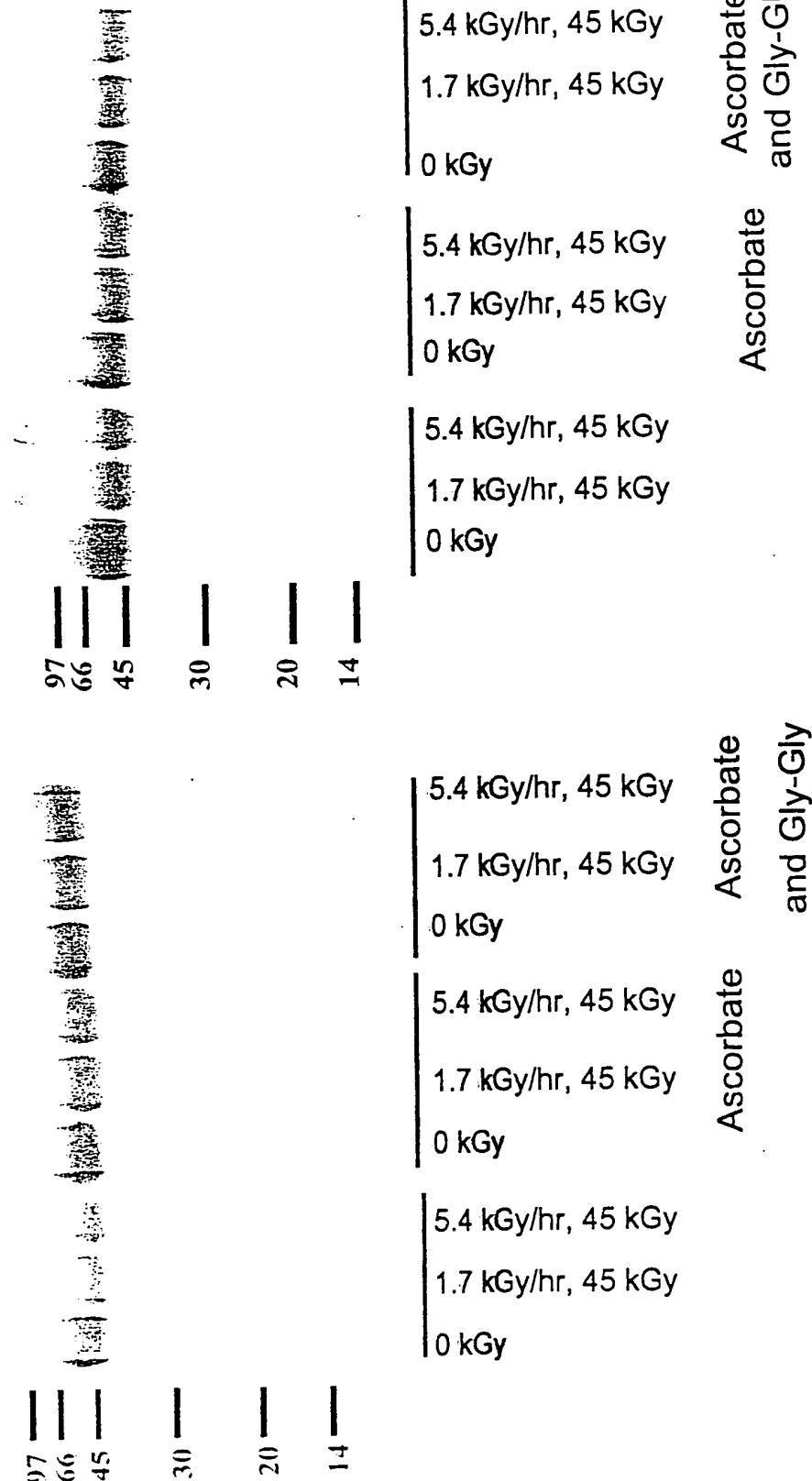


22B

SDS-PAGE for a Glycosidase

Nonreduced

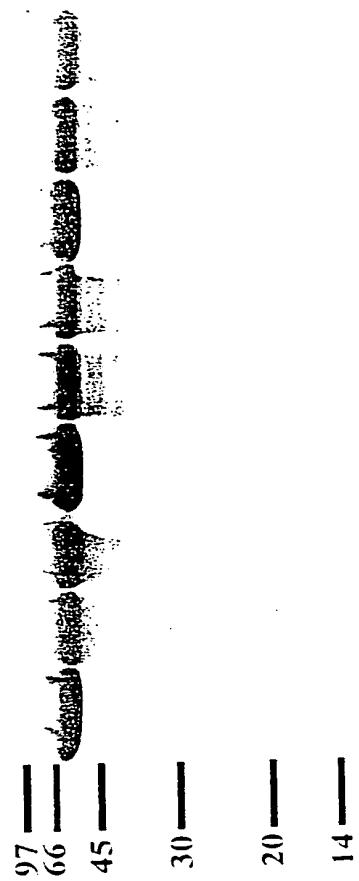
Reduced



23A

SDS-PAGE for a Sulfatase

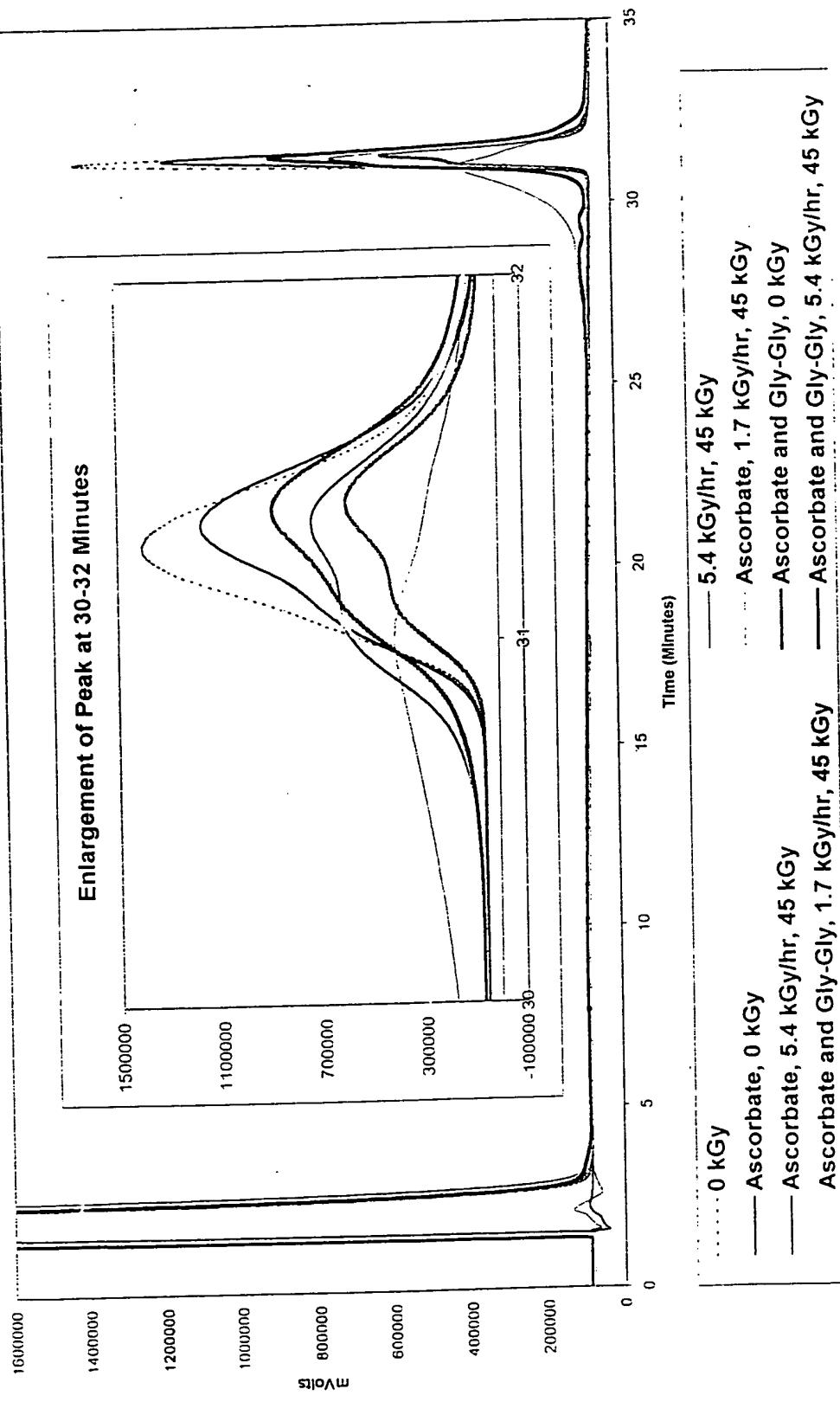
Reduced



5.4 kGy/hr, 45 kGy	
1.7 kGy/hr, 445 kGy	
0 kGy	
5.4 kGy/hr, 45 kGy	
1.7 kGy/hr, 45 kGy	
0 kGy	
5.4 kGy/hr, 45 kGy	
1.7 kGy/hr, 45 kGy	
0 kGy	

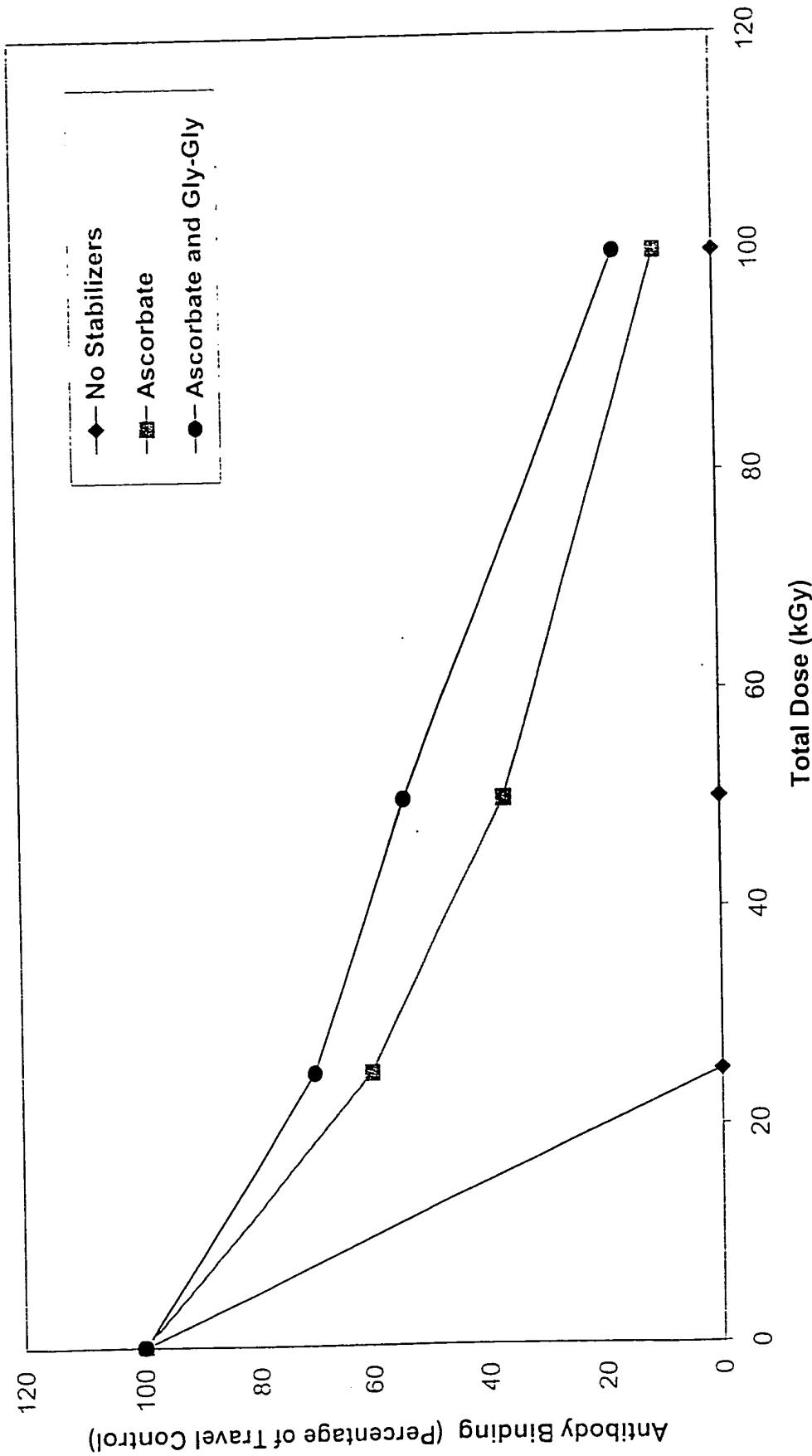
23B

Gamma Irradiation of a Glycosidase In the Presence or Absence of
Ascorbate Alone or In Combination with Gly-Gly

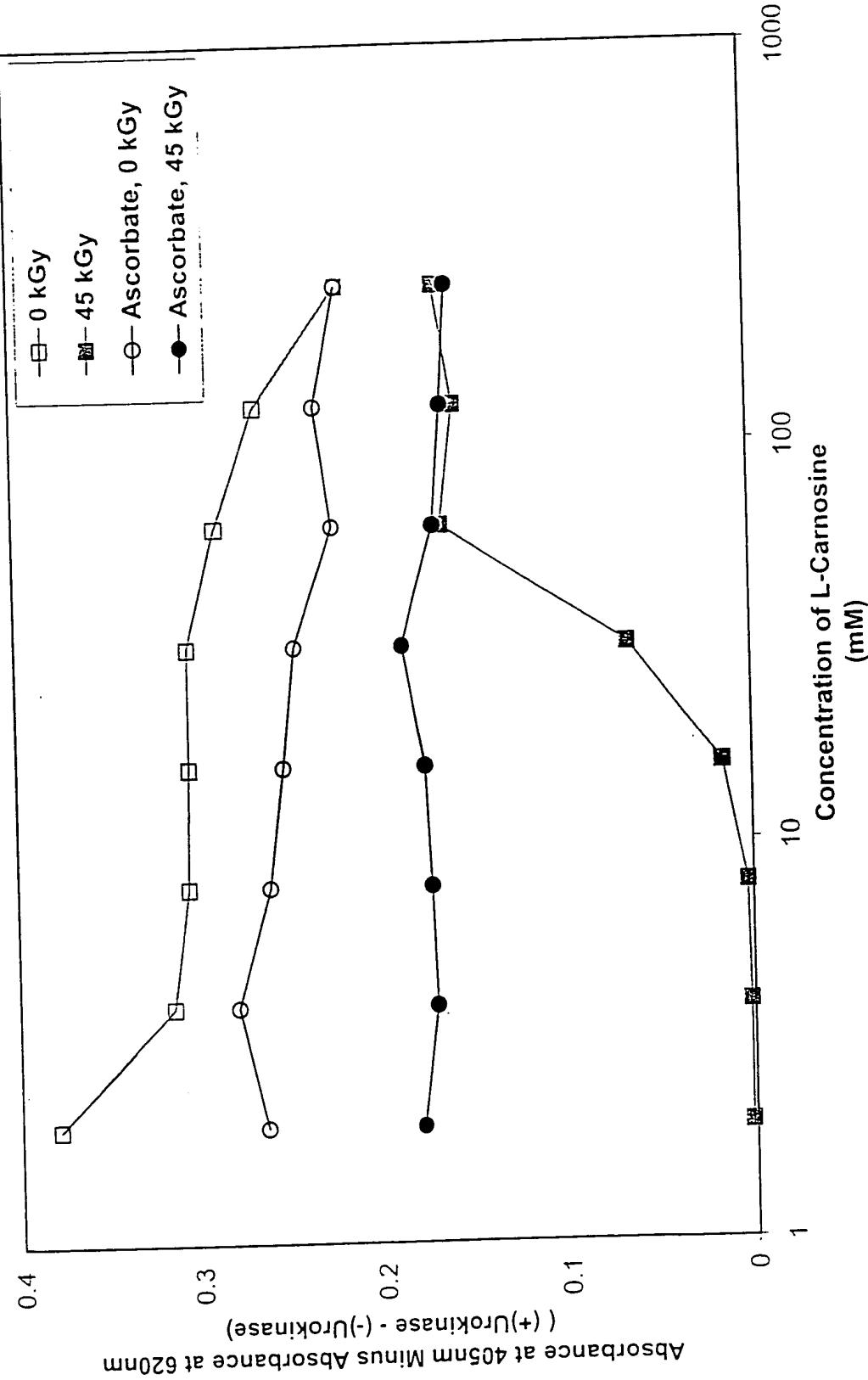


24

Gamma Irradiation of Liquid Anti-Insulin Monoclonal Antibody in
the Presence or Absence of 200 nM Ascorbate Alone or in Combination With 200 nM Gly-Gly

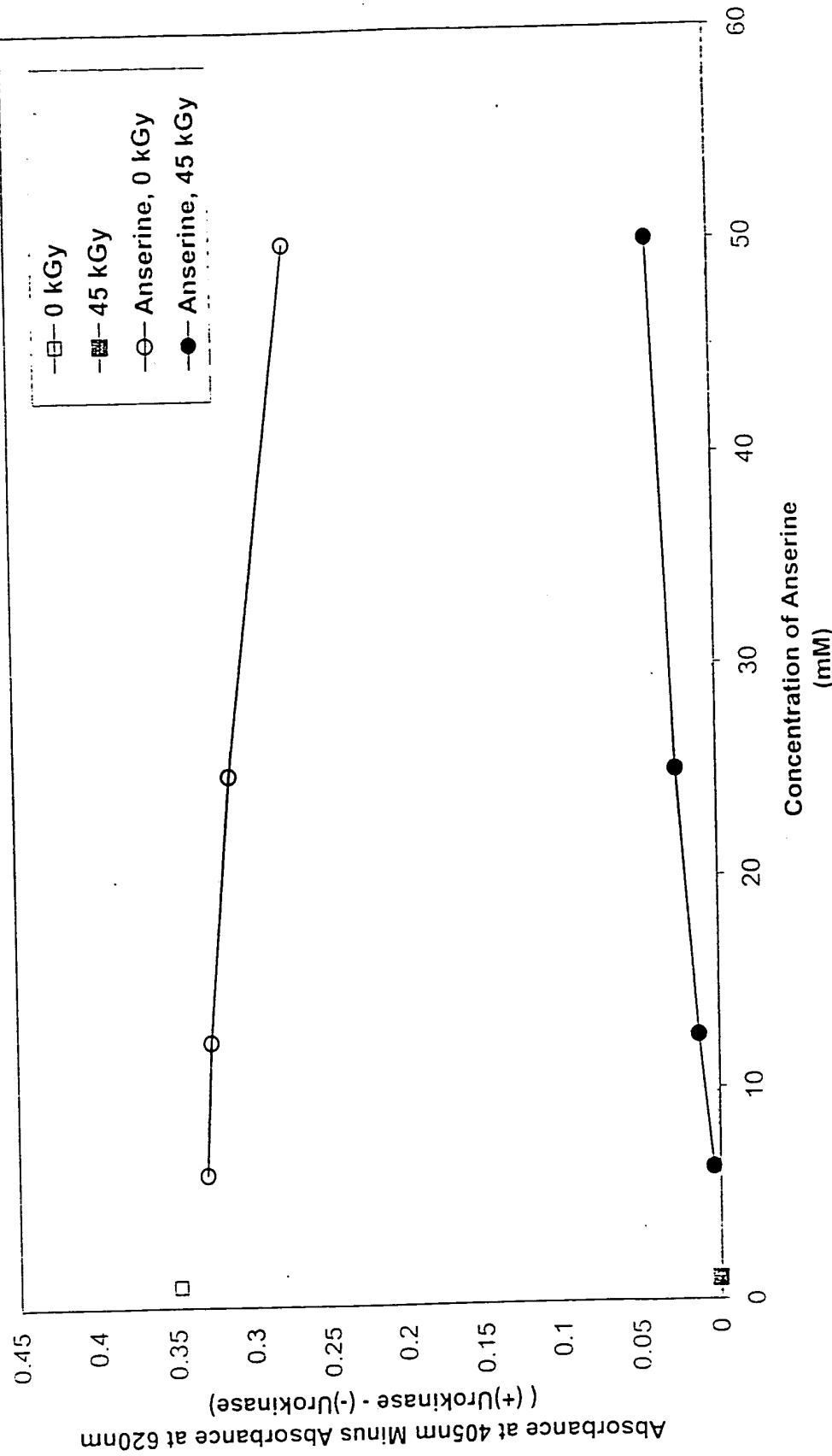


Gamma Irradiation of Liquid Urokinase, With L-Carnosine, at 45 kGy in the Presence or Absence of 50mM Ascorbate



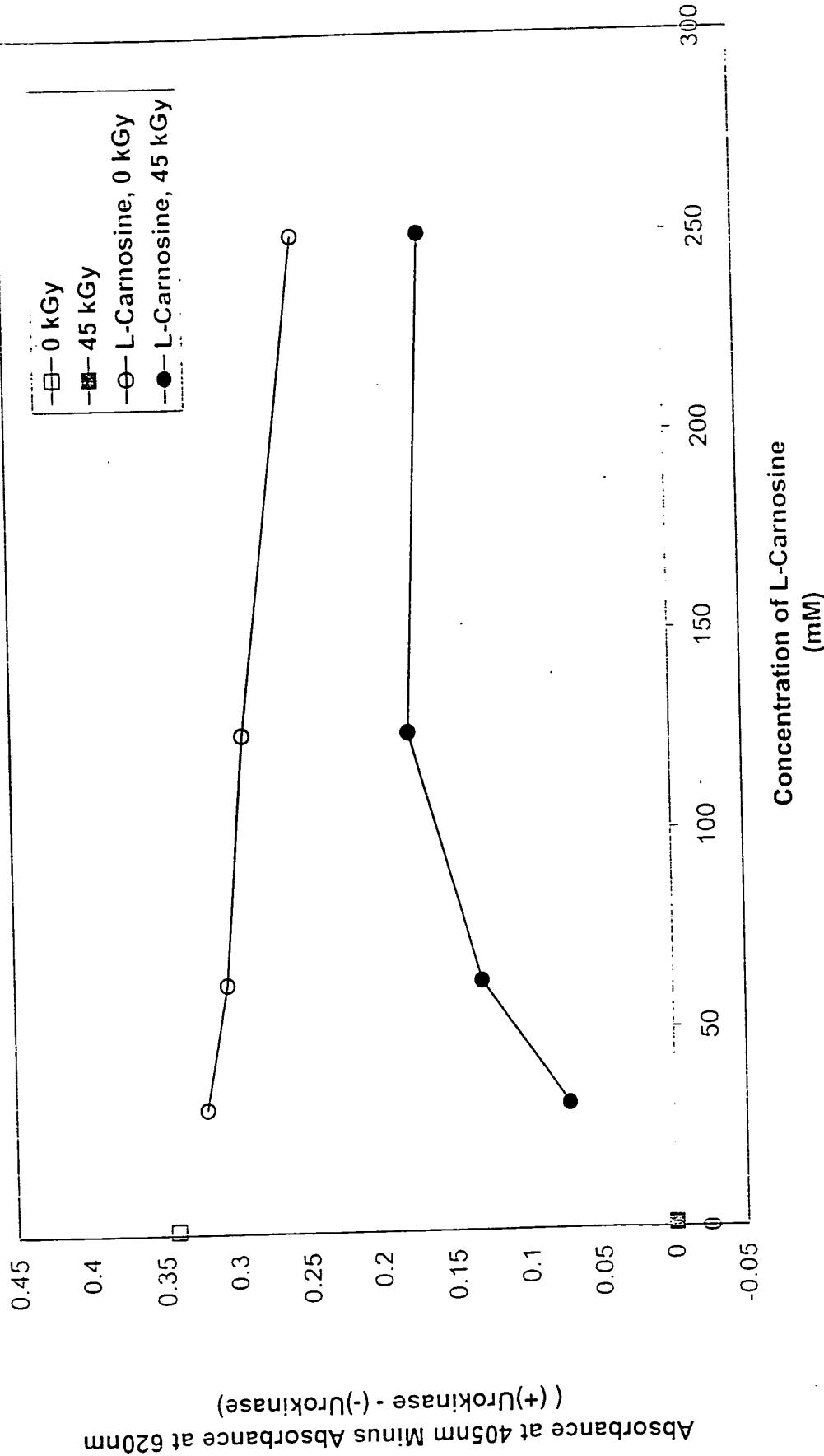
26

Gamma Irradiation of Liquid Urokinase in the Presence or Absence of Anserine



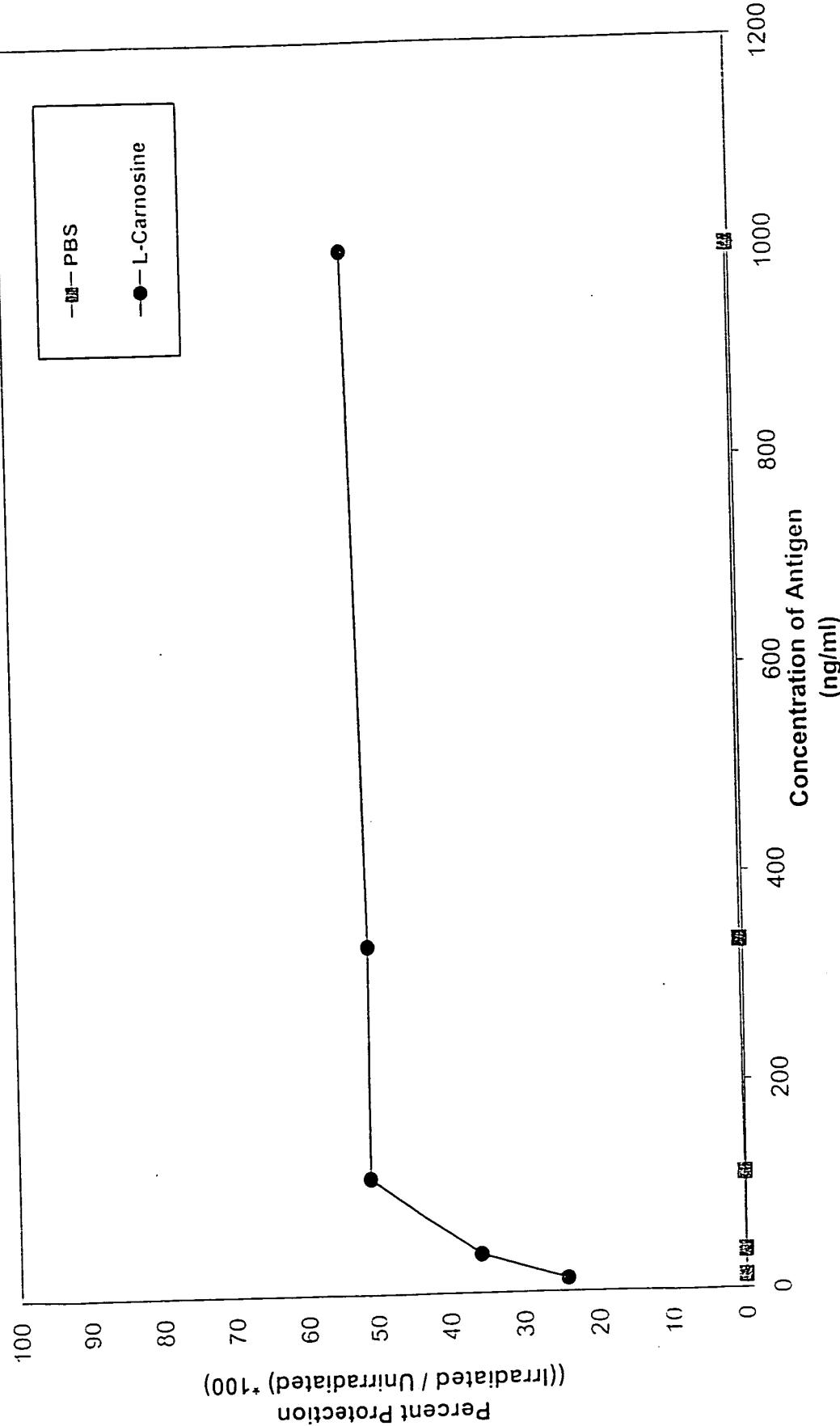
27

Gamma Irradiation of Liquid Urokinase in the Presence or Absence of L-Carnosine



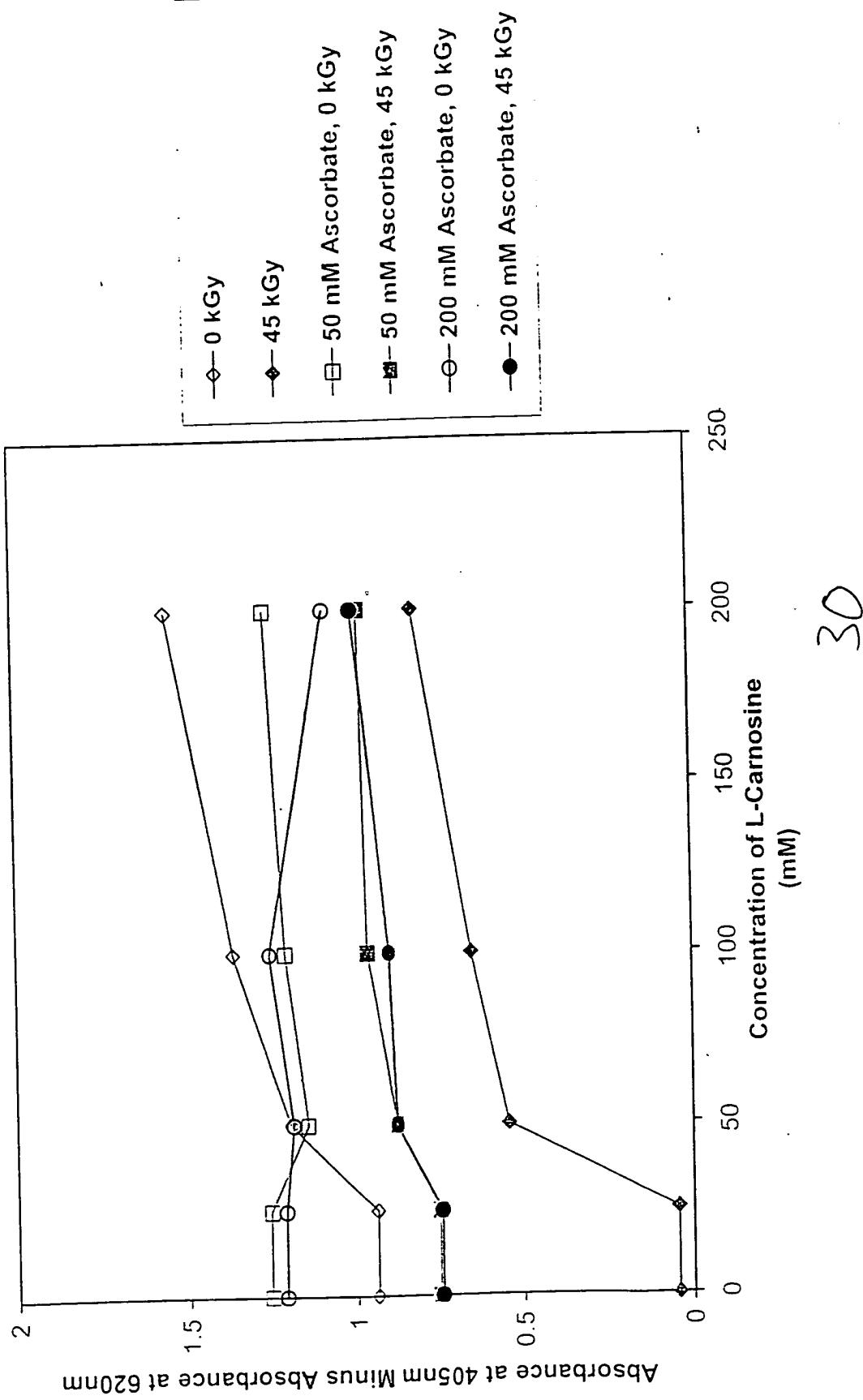
28

Gamma Irradiation of Immobilized Anti-Insulin Monoclonal Antibody, to 45 kGy, in the Presence or Absence of 100 mM L-Carnosine

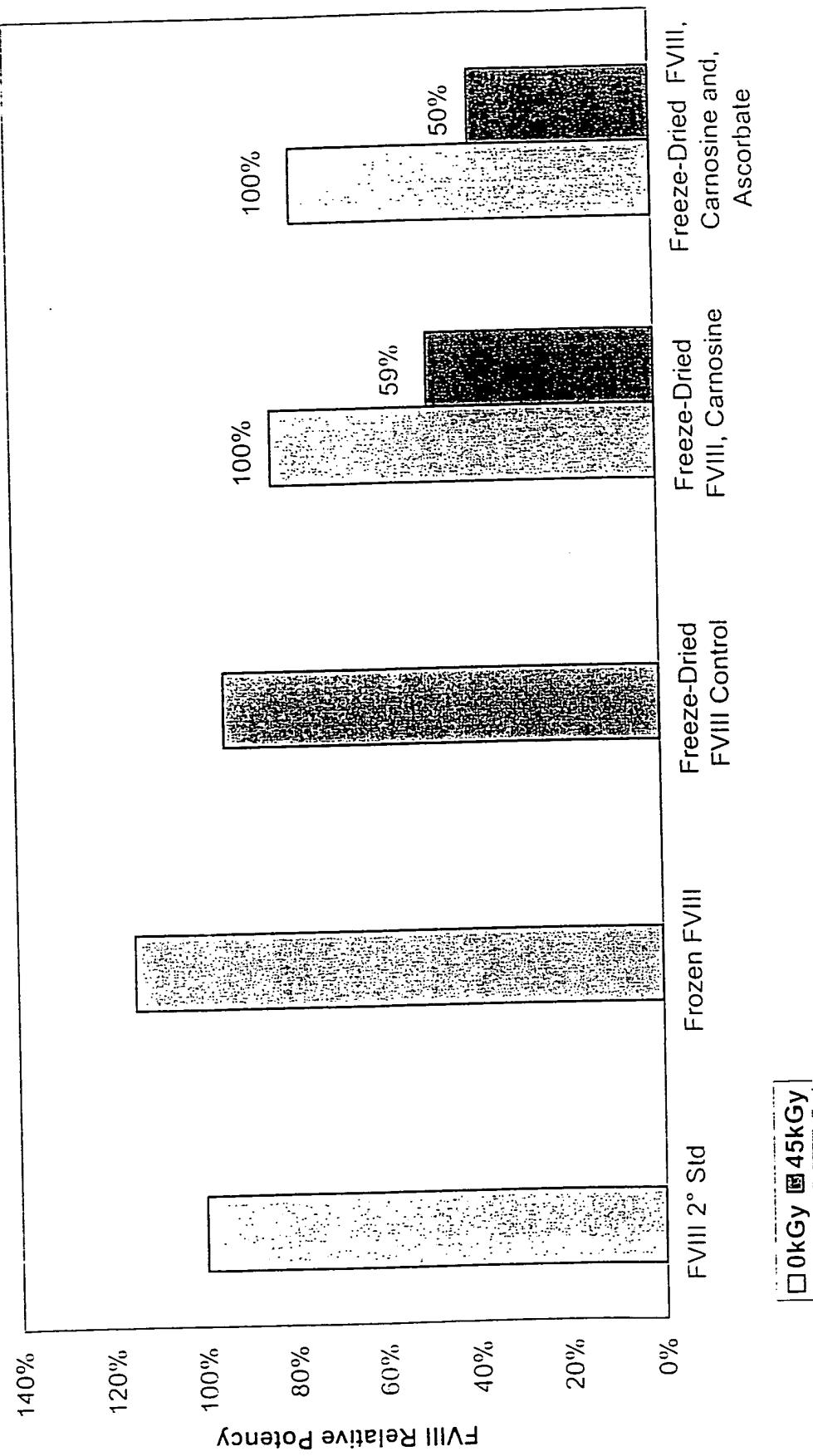


29

Gamma Irradiation of Immobilized Monoclonal Antibody in the Presence or Absence of L-Carnosine and Ascorbate

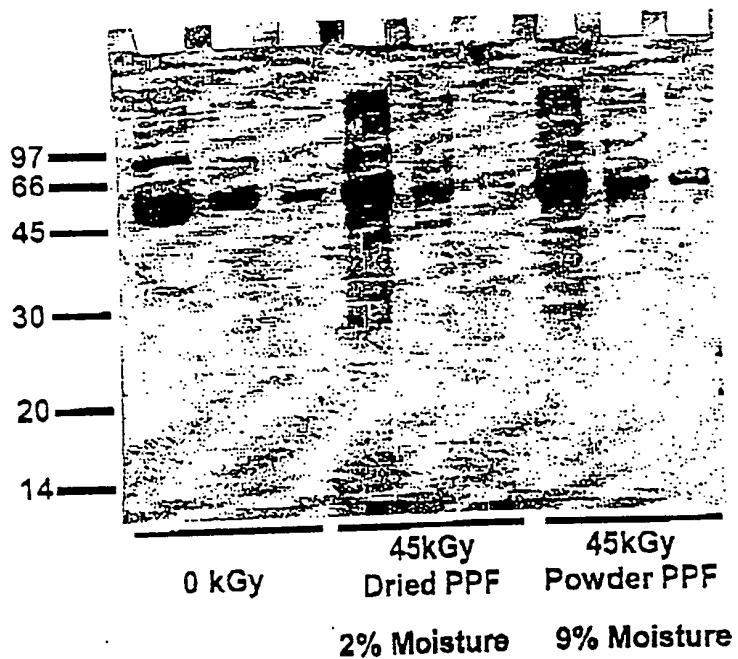


Gamma Irradiation of Freeze-Dried FVIII in the Presence or
Absence L-Carnosine Alone or in Combination with Ascorbate

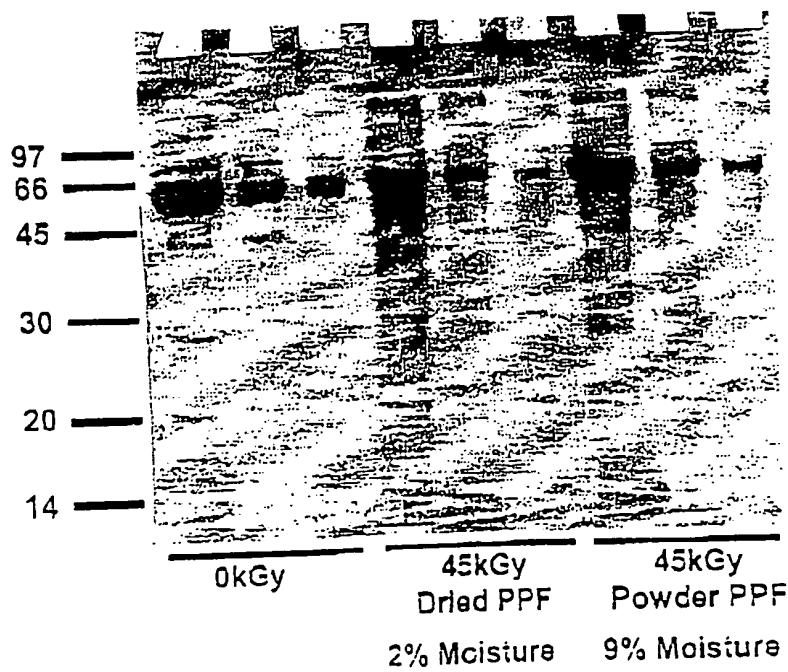


Gamma Irradiation
of Dried and Powder PPF

Nonreduced, 12.5%

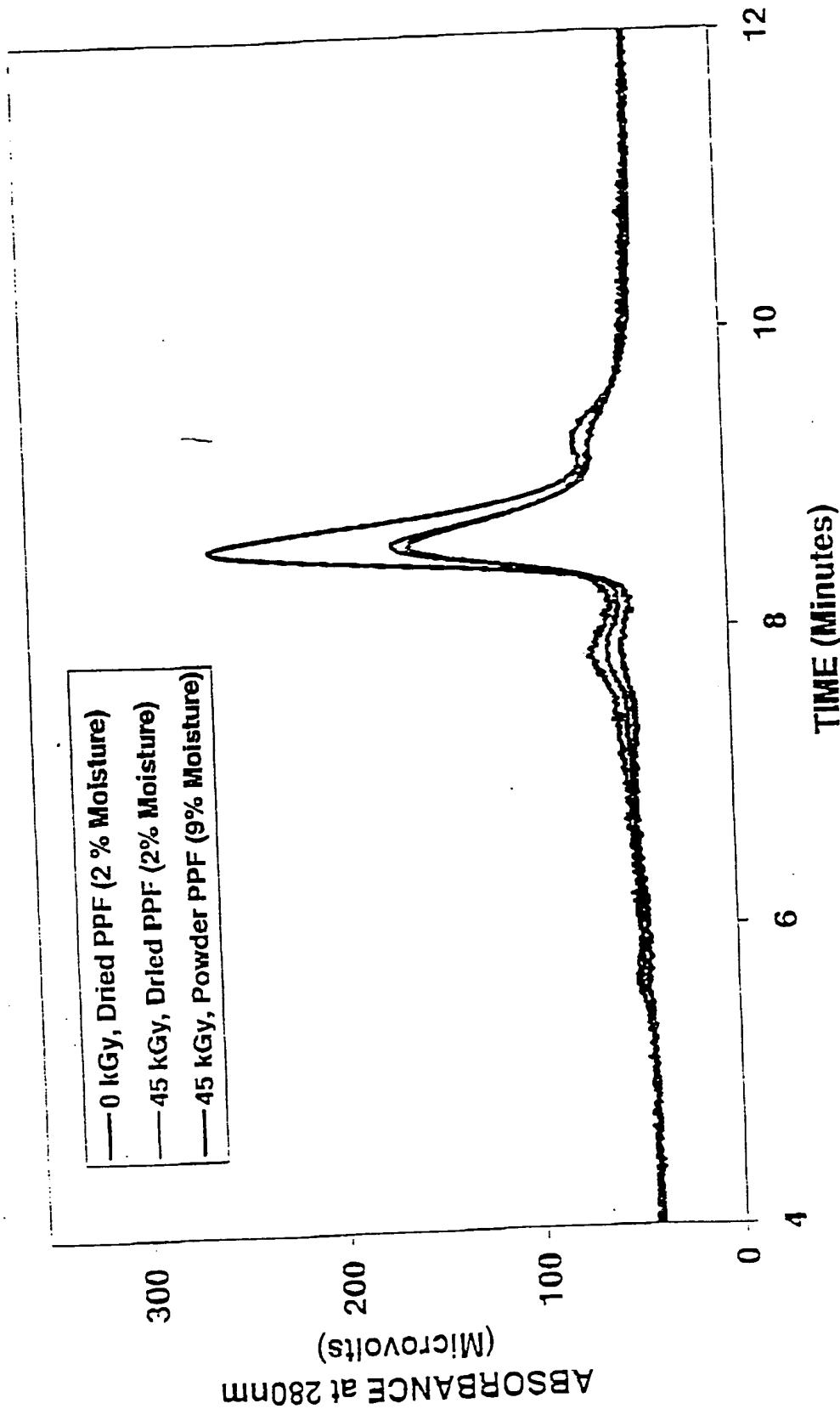


Reduced, 12.5%

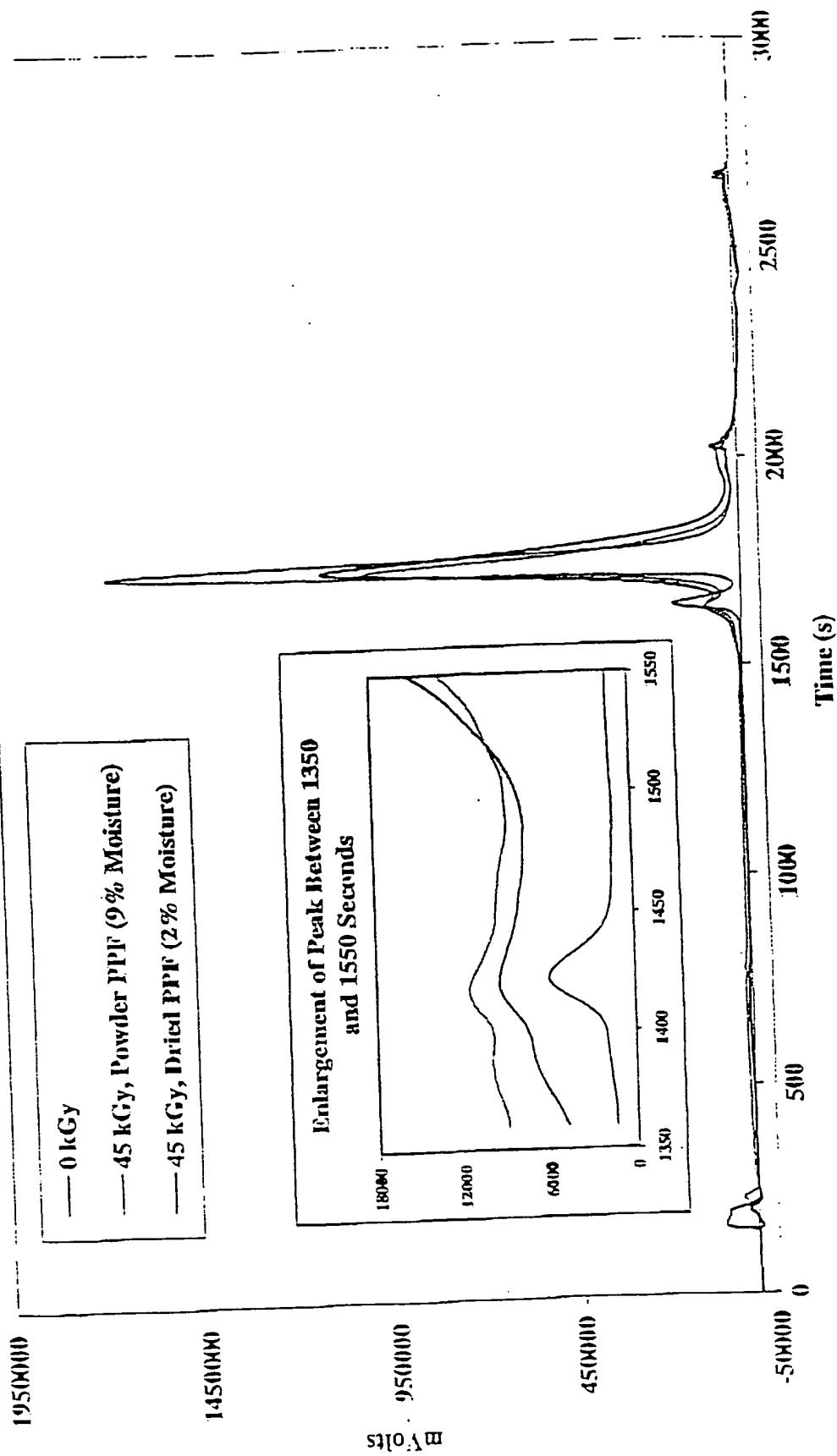


32A

Gamma Irradiation of Dried and Powder PPF



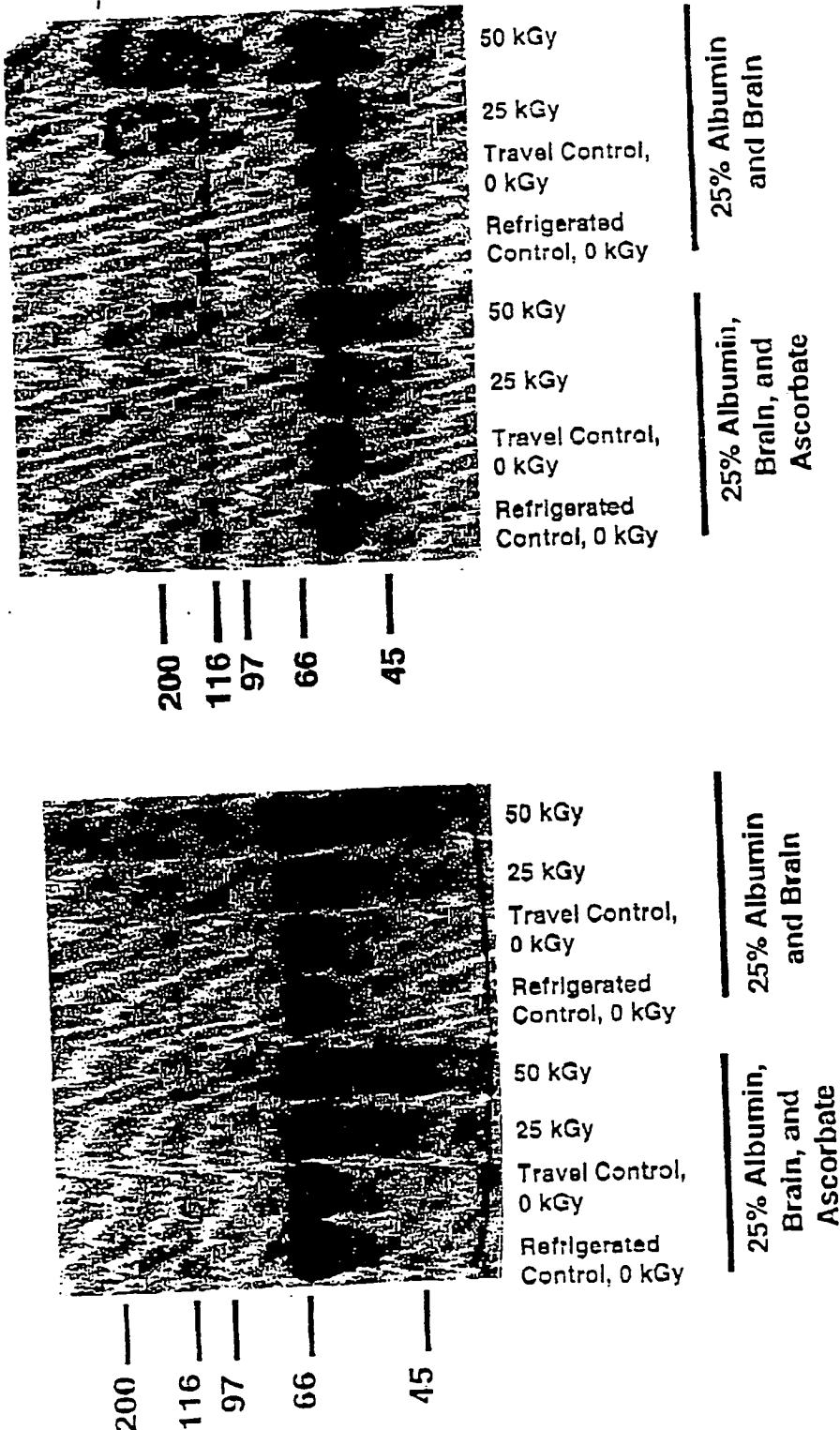
Gamma Irradiation of Dried and Powder PPI



32C

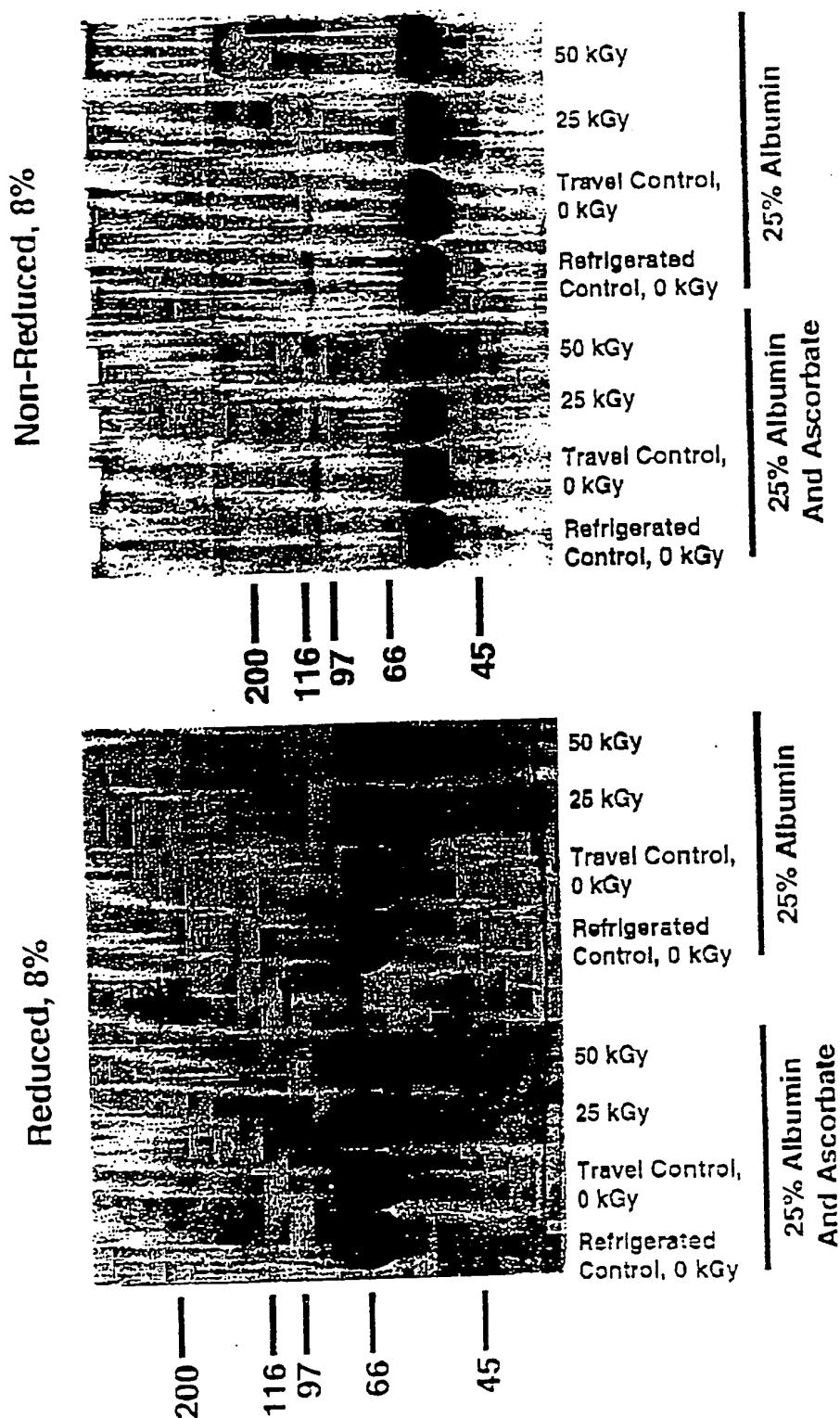
**Gamma Irradiation (to 25
and 50 kGy) of 25% Albumin in the Presence of Brain
Alone or in Combination with 200 mM Ascorbate**

Reduced, 8%
Non-Reduced, 8%

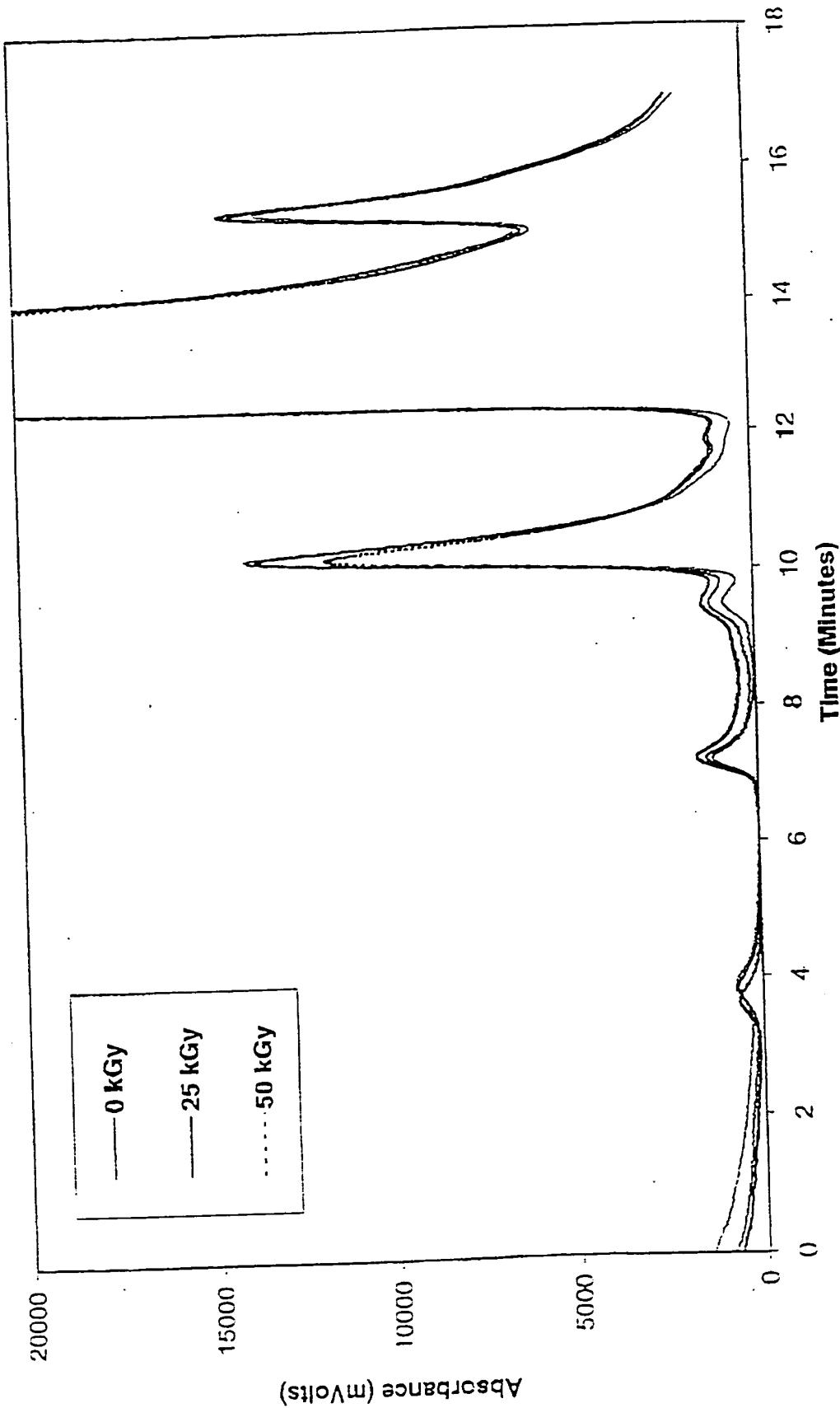


33A

Gamma Irradiation (to 25 and 50 kGy) of 25% Albumin in the Presence or Absence of 200 mM Ascorbate

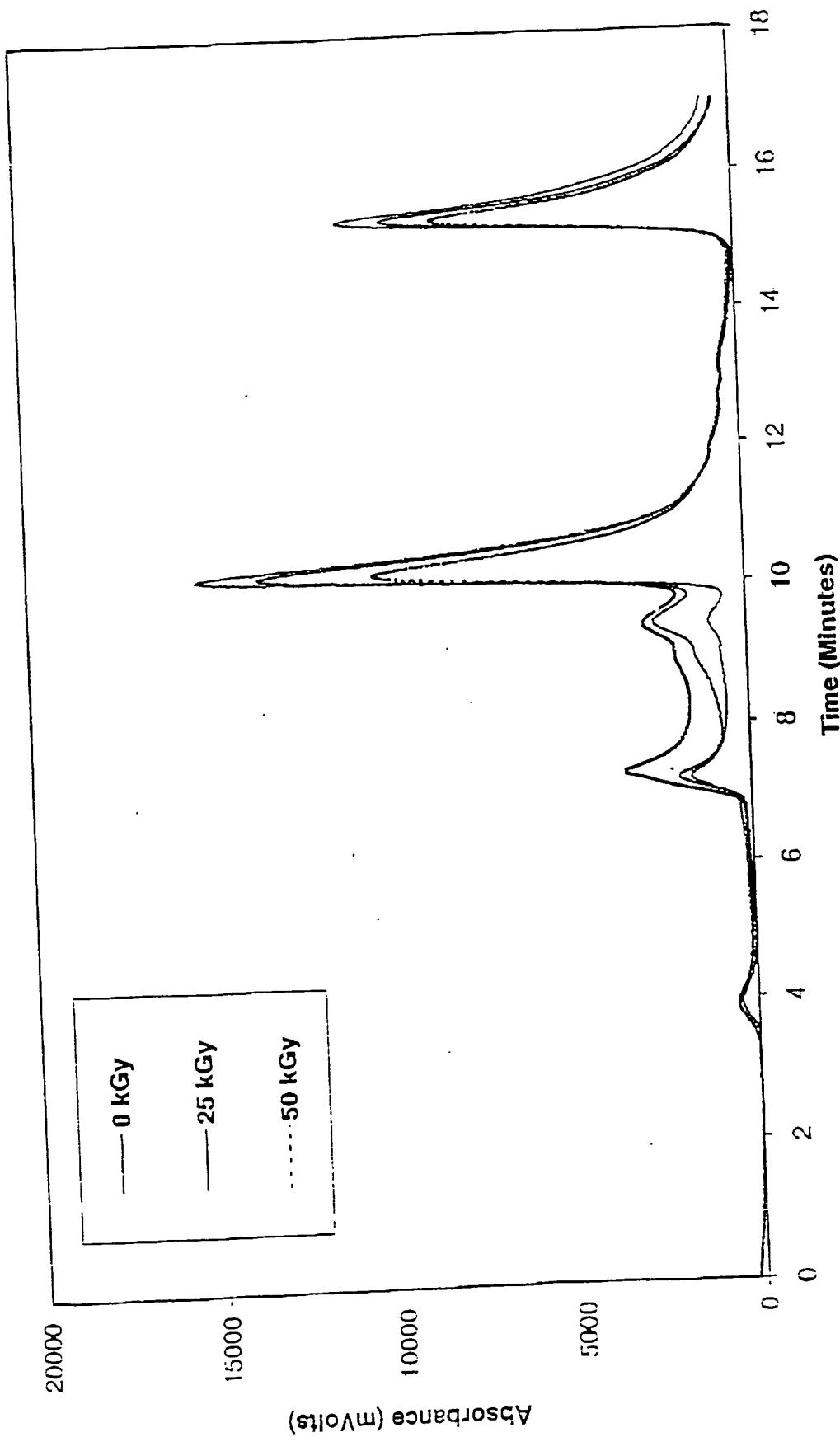


**Gamma Irradiation of 25% Albumin in the Presence
of Brain and 200 mM Ascorbate**



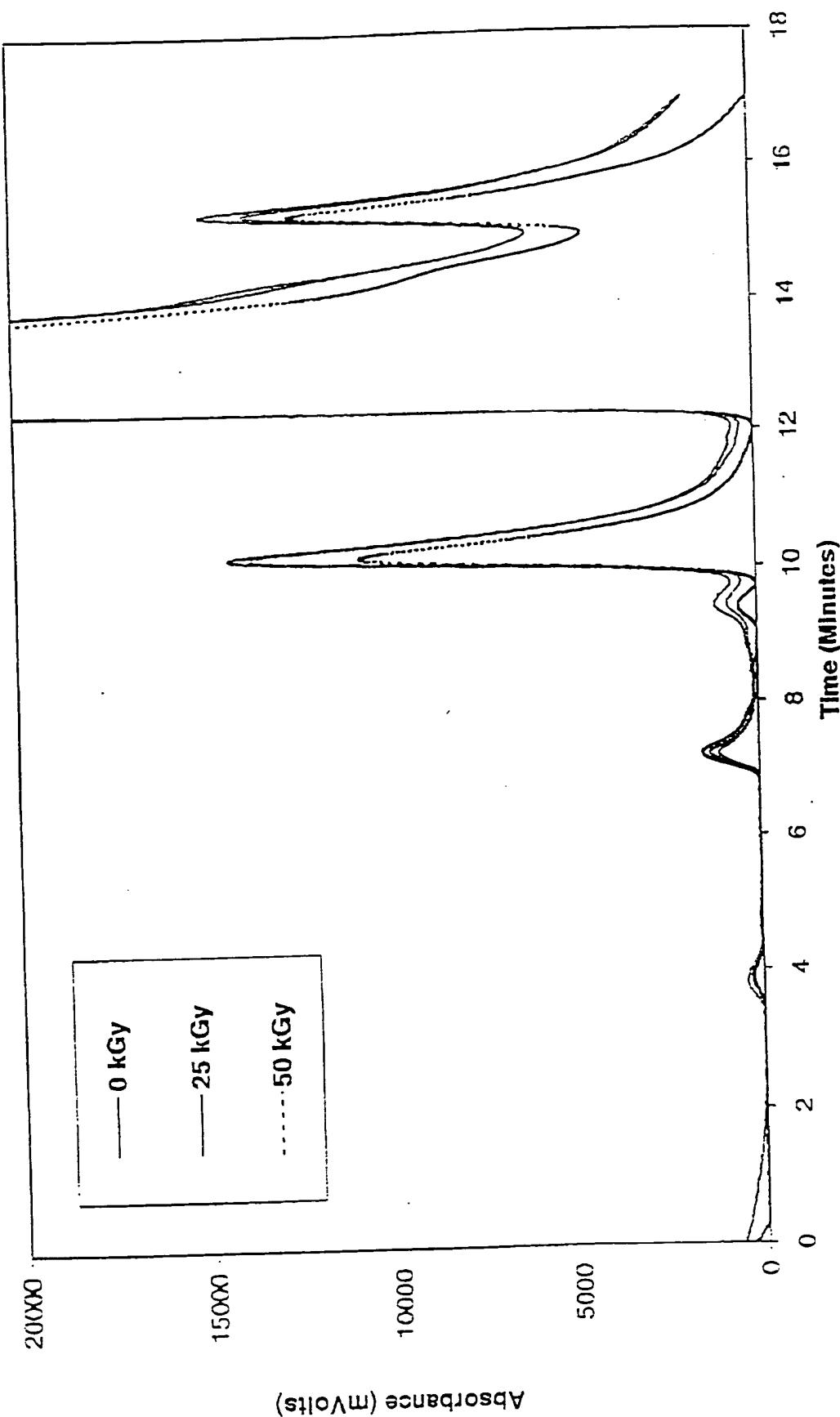
33C

Gamma Irradiation of 25% Albumin in the Presence of Brain



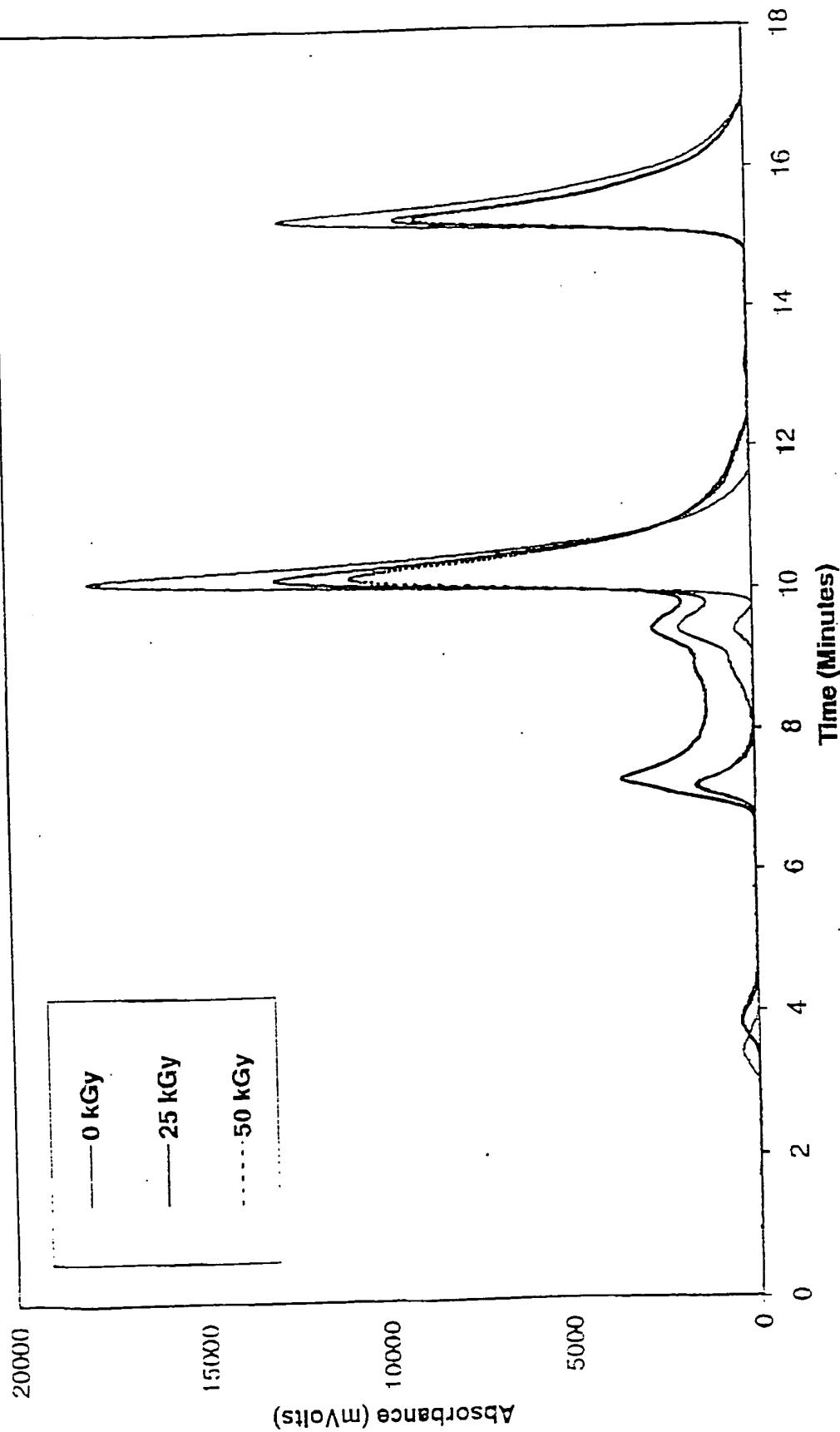
33D

Gamma Irradiation of 25% Albumin in the Presence
of 200 mM Ascorbate



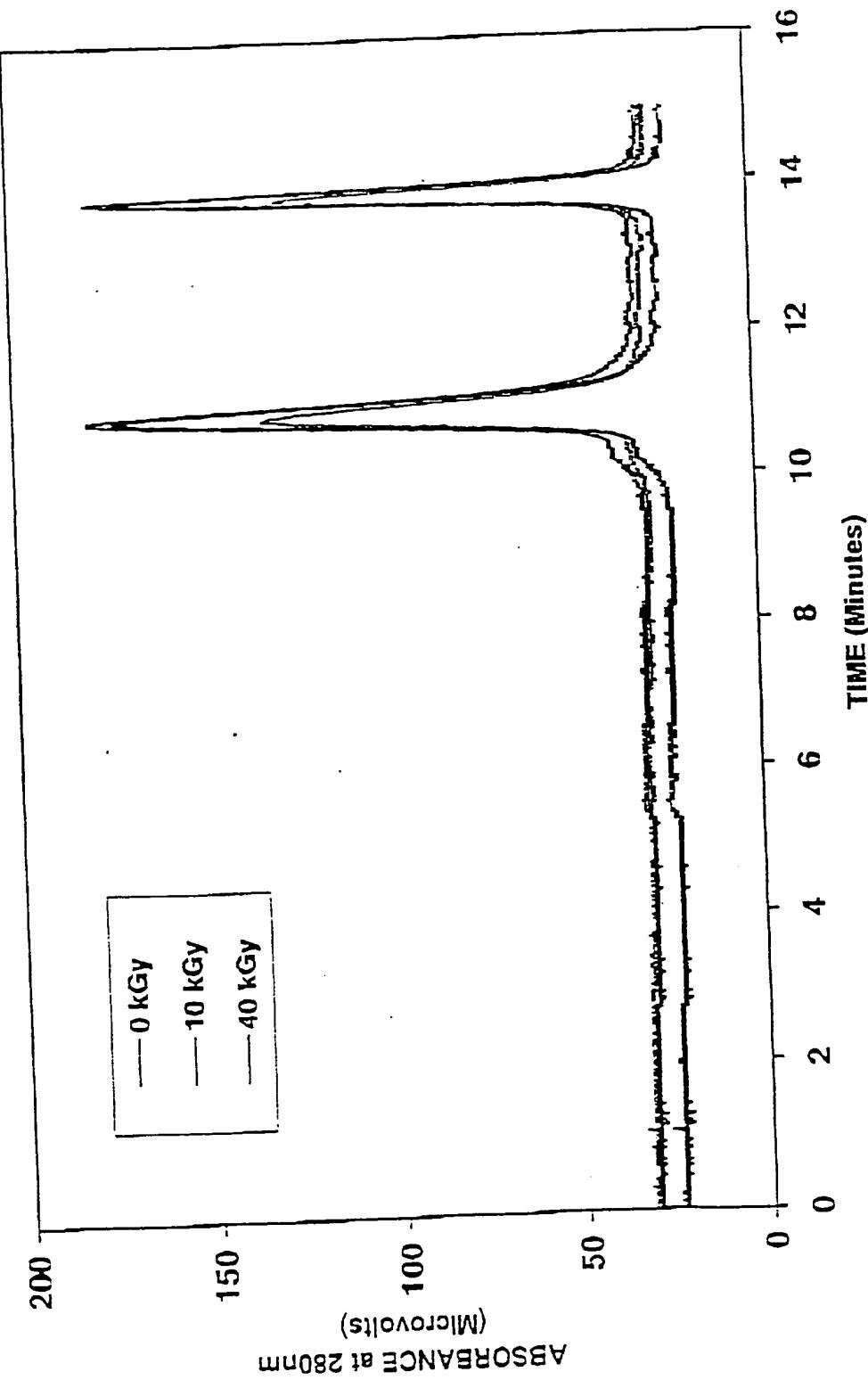
33E

Gamma Irradiation of 25% Albumin



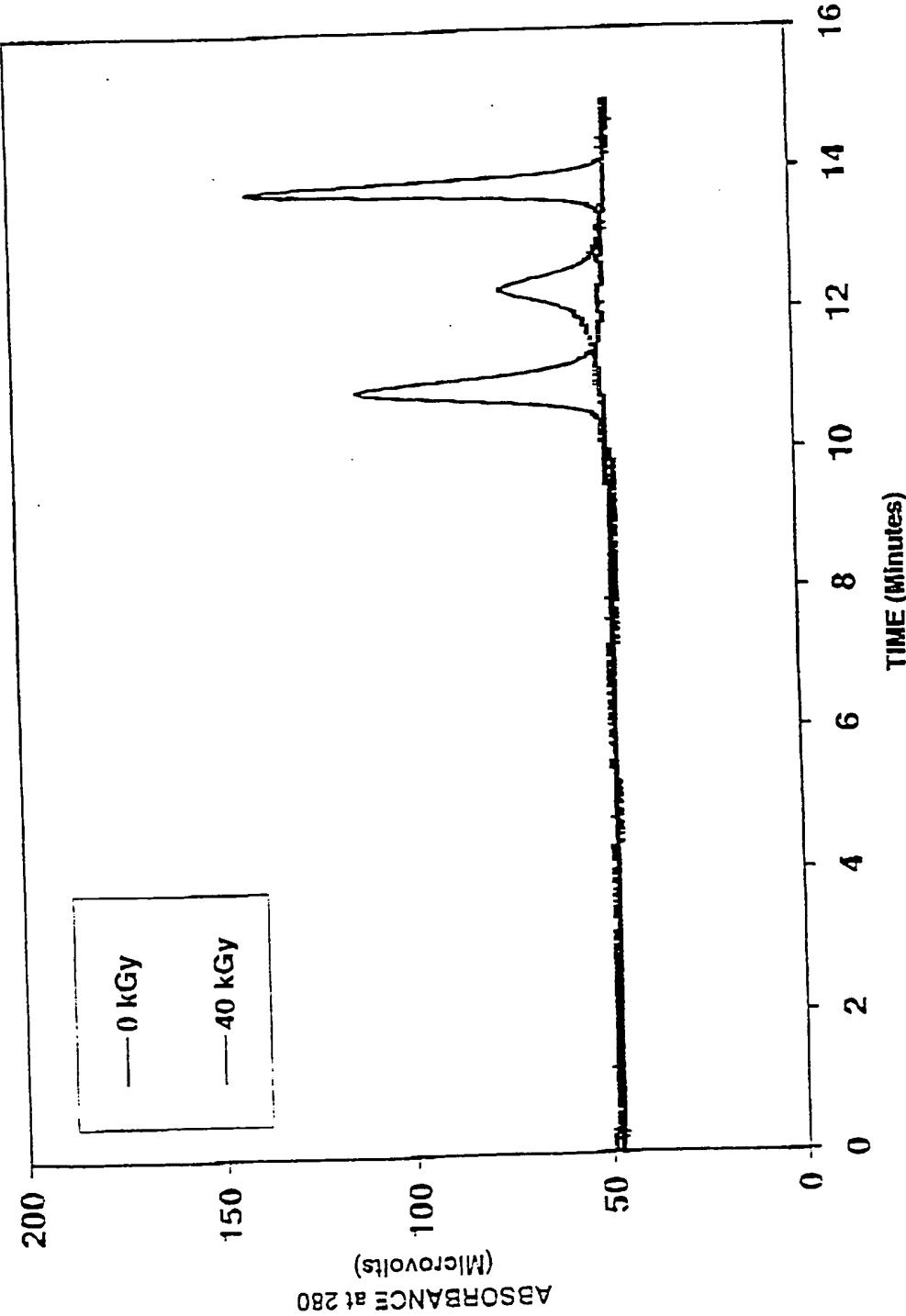
33F

**Gamma Irradiation of
Lyophilized Albumin**



34A

**Gamma Irradiation of
Liquid Albumin**



34B

25% Albumin - Non-Reduced

1 2 3 4 5 6 7 8 9 10 11 12

		Std	Lane	Sample
		Kd		
			1	Empty
			2	Broad Range Std. (BioRad)
		200	3	Empty
		116	4	0 Kgy (Control) Box 3C (- Ar)
		97	5	18.0 Kgy (\approx 0.91 Kgy/hr) Box 1 (- Ar)
		66	6	23.0 Kgy (\approx 0.92 Kgy/hr) Box 2 (- Ar)
		45	7	30.4 Kgy (\approx 1.01 Kgy/hr) Box 3 (- Ar)
			8	0 Kgy (Control) Box 3C (- Ar)
			9	18.0 Kgy (\approx 0.91 Kgy/hr) Box 1 (- Ar)
		21.5	10	23.0 Kgy (\approx 0.92 Kgy/hr) Box 2 (- Ar)
14.4	11			30.4 Kgy (\approx 1.01 Kgy/hr) Box 3 (- Ar)
	12			Empty

35A

25% Albumin - Reduced

1 2 3 4 5 6 7 8 9 10 11 12

		Std	Lane	Sample
		Kd		
			1	Empty
			2	Broad Range Std. (BioRad)
		200	3	Empty
		116	4	0 Kgy (Control) Box 3C (- Ar)
		97	5	18.0 Kgy (\approx 0.91 Kgy/hr) Box 1 (- Ar)
		66	6	23.0 Kgy (\approx 0.92 Kgy/hr) Box 2 (- Ar)
		45	7	30.4 Kgy (\approx 1.01 Kgy/hr) Box 3 (- Ar)
			8	0 Kgy (Control) Box 3C (- Ar)
			9	18.0 Kgy (\approx 0.91 Kgy/hr) Box 1 (- Ar)
		21.5	10	23.0 Kgy (\approx 0.92 Kgy/hr) Box 2 (- Ar)
14.4	11			30.4 Kgy (\approx 1.01 Kgy/hr) Box 3 (- Ar)
	12			Empty

35B

Gamma Irradiation of Powder PPF at -20°C

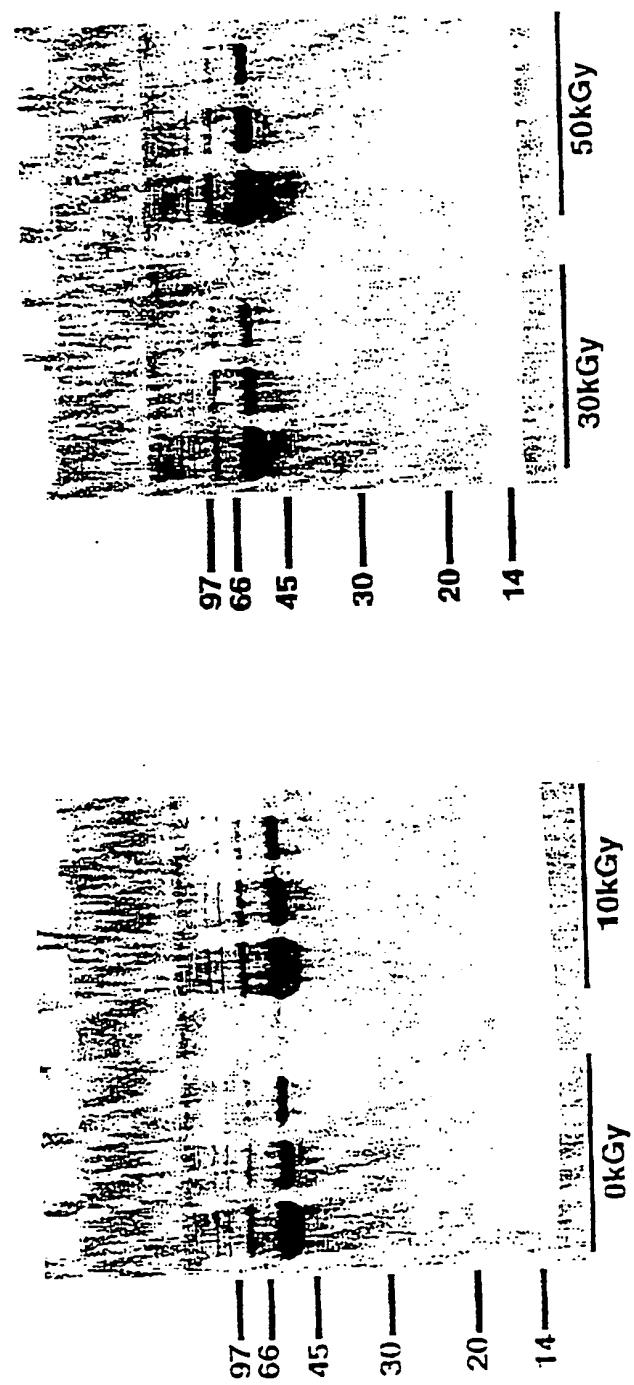
Reduced



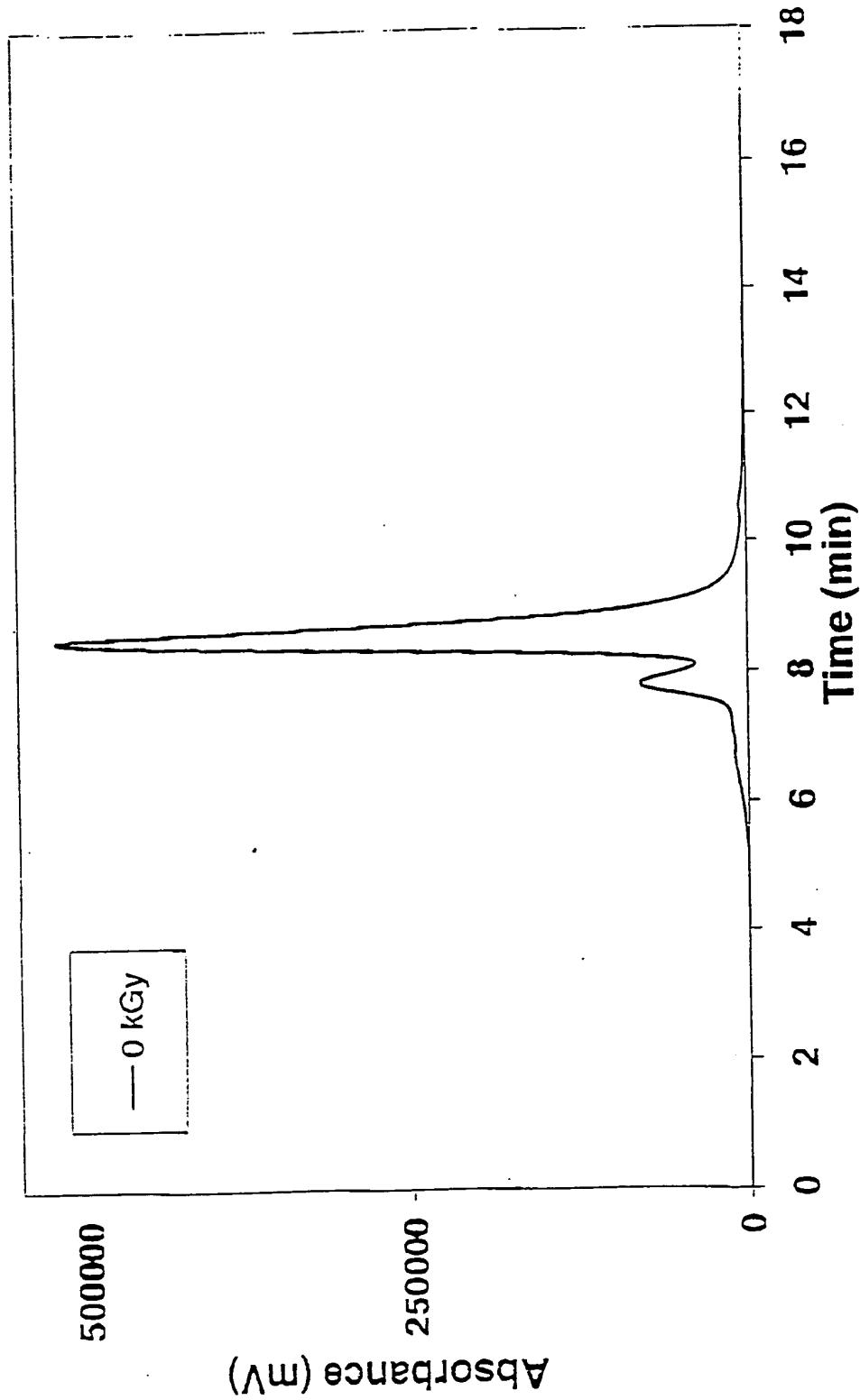
36A

Gamma Irradiation of Powder PPF at -20°C

Nonreduced

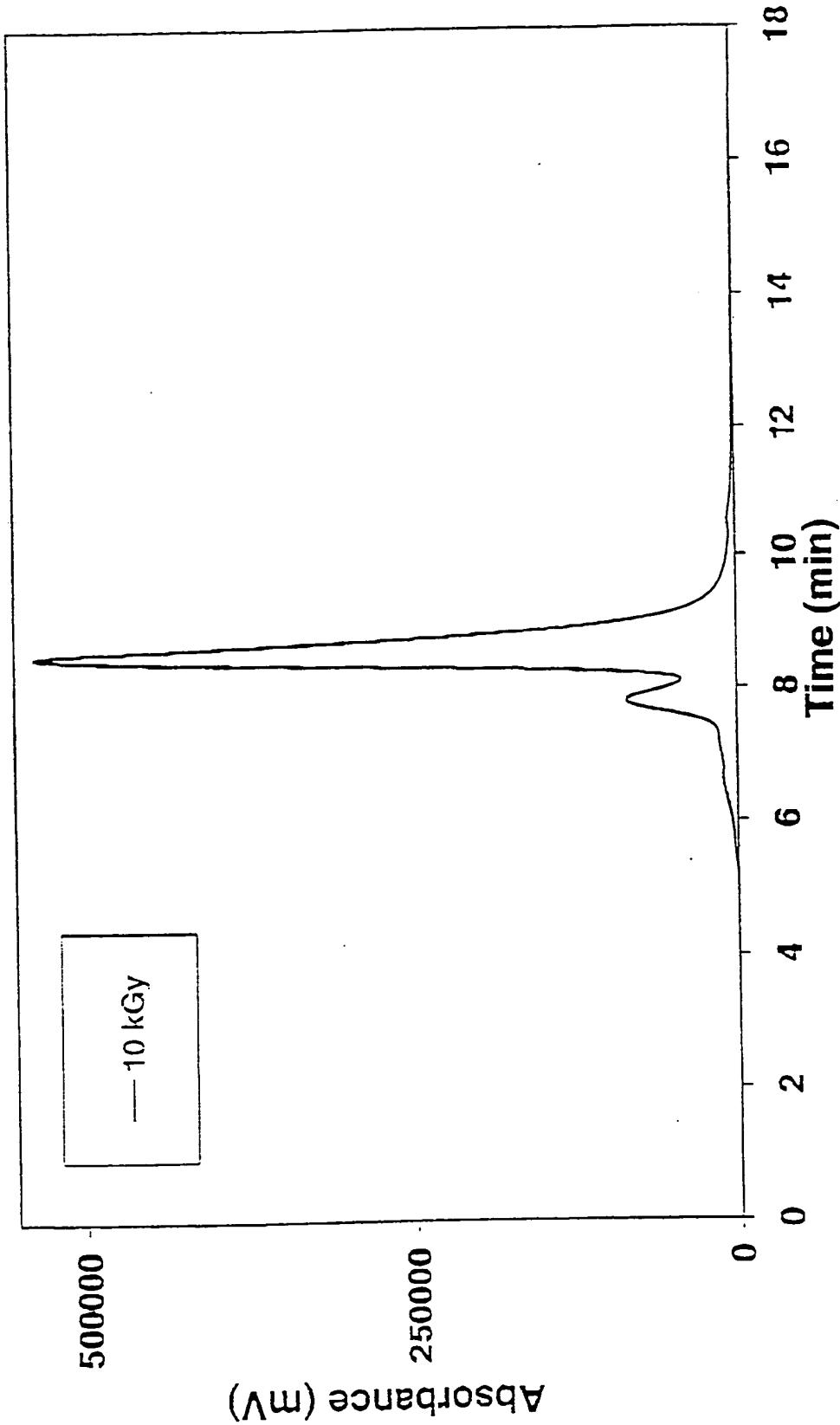


Gamma Irradiation of Powder PPF



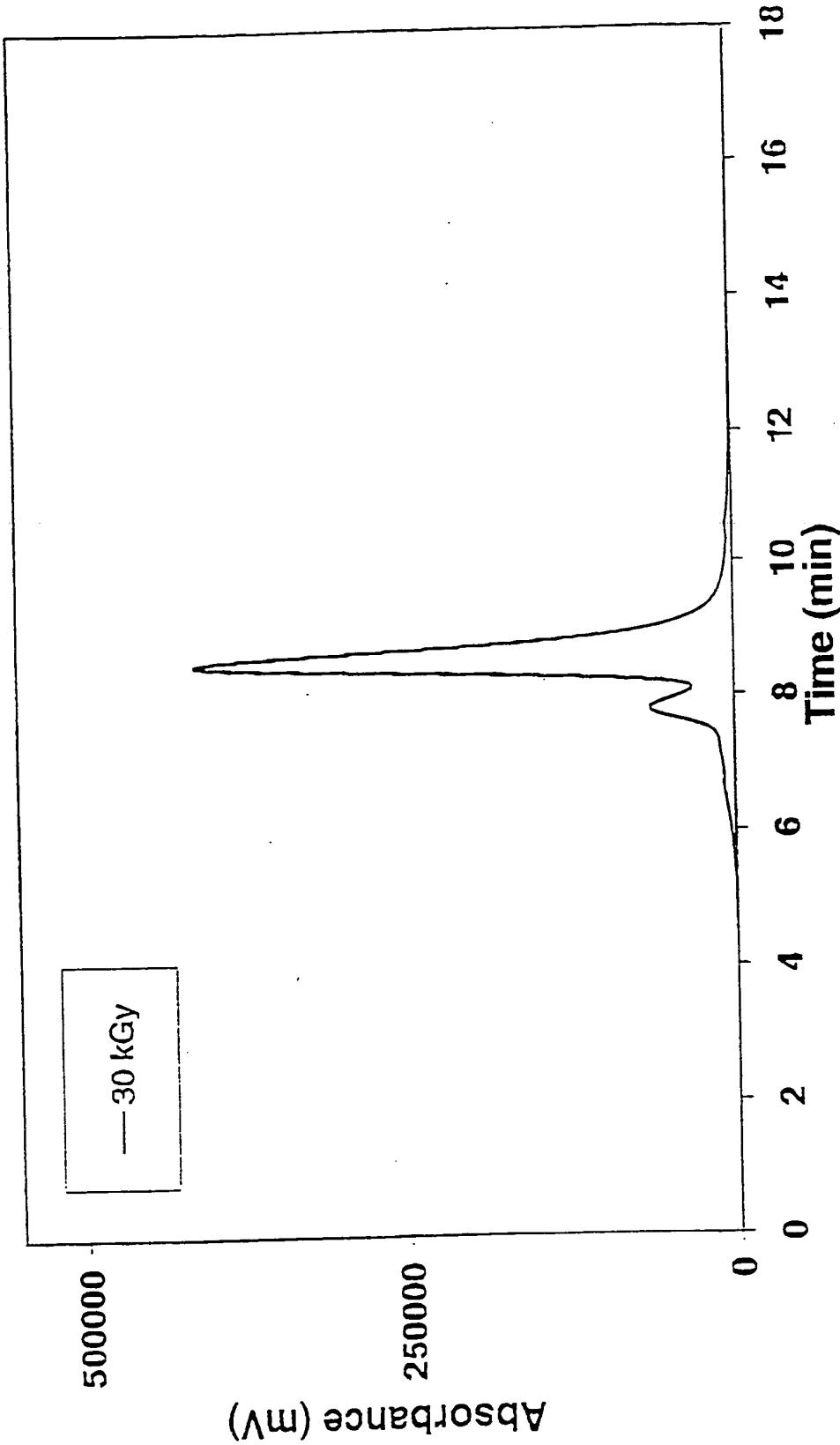
36°C

Gamma Irradiation of Powder PPF

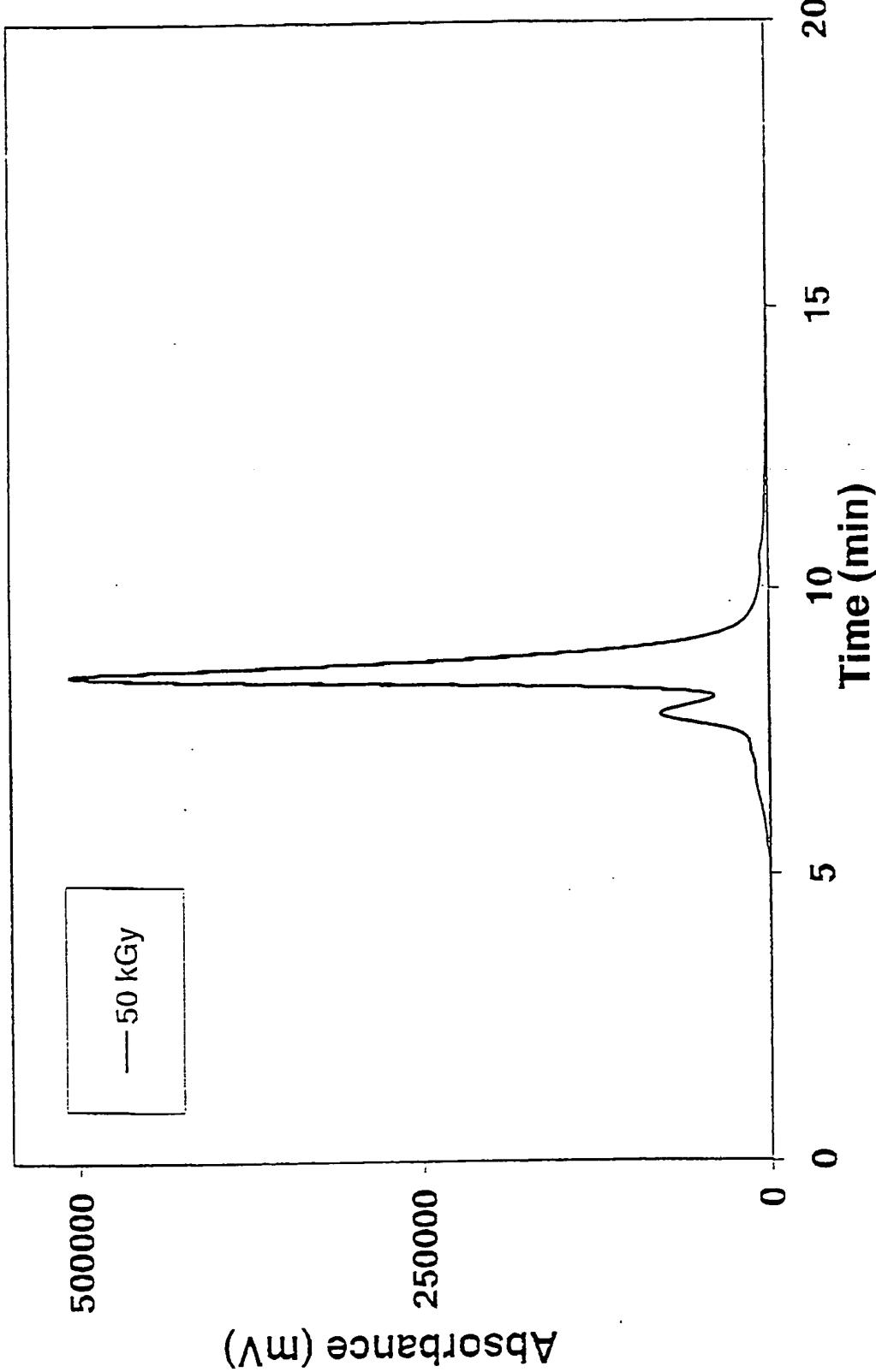


36D

Gamma Irradiation of Powder PPF

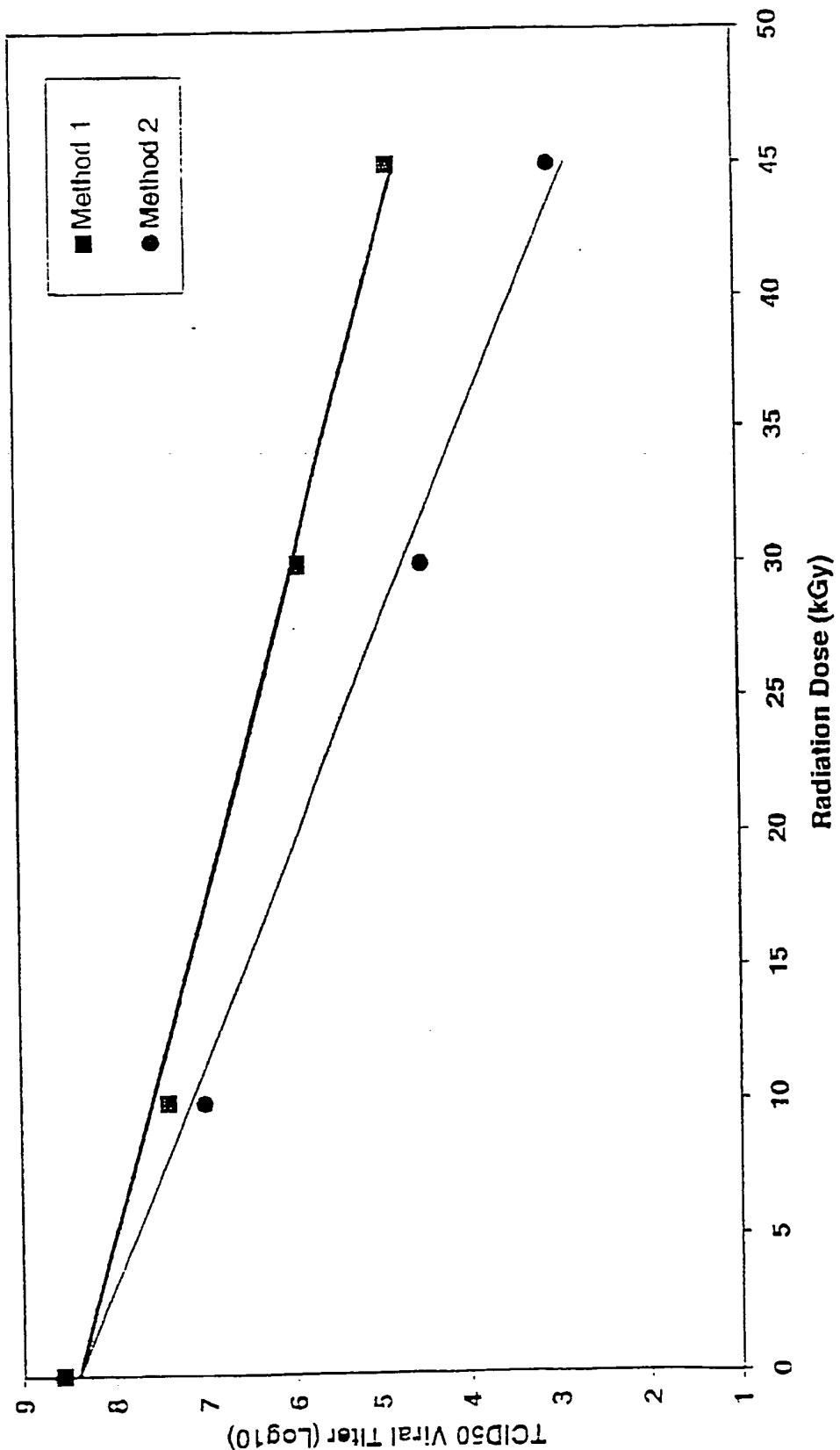


Gamma Irradiation of Powder PPF



36F

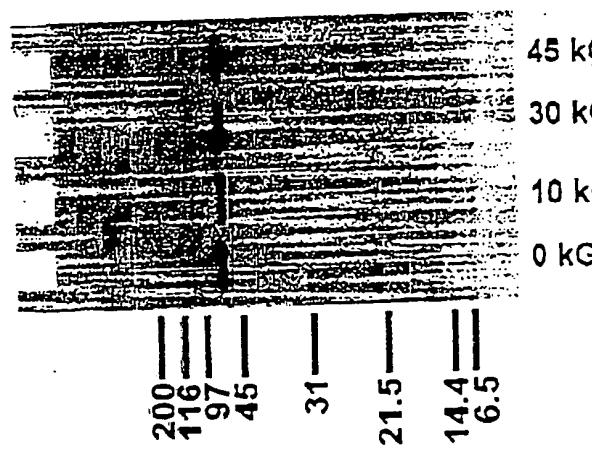
Gamma Irradiation of PPV in PPF by Irradiation at -80°C



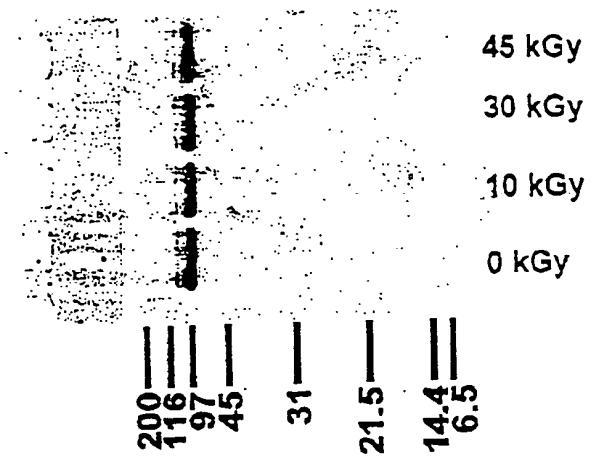
37A

Gamma Irradiation of PPF By Method 2

Nonreduced, 12.5%



Reduced 12.5%

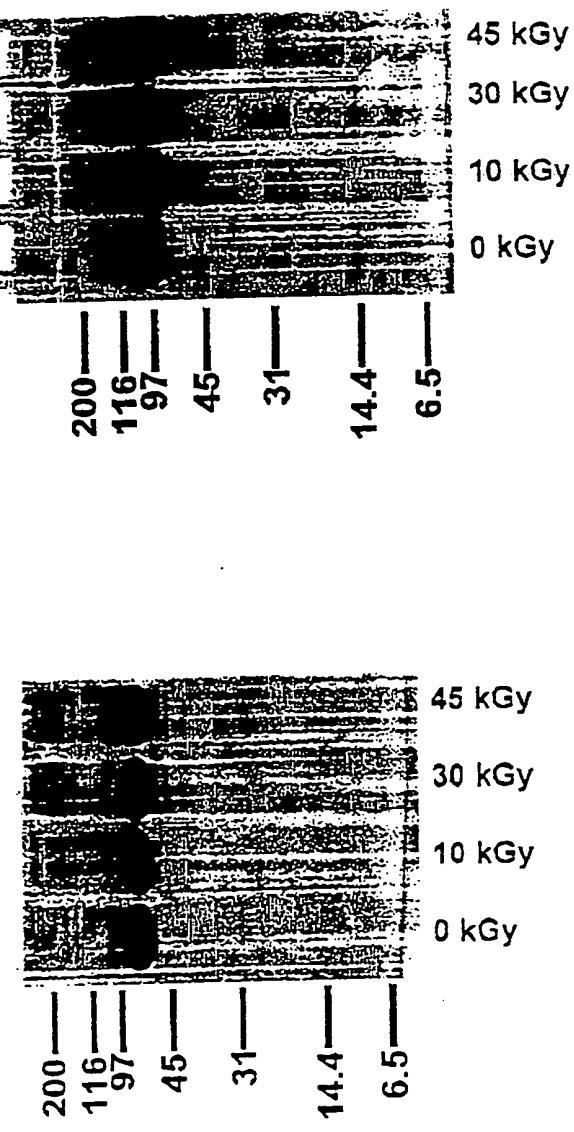


373

083101.alb.04/ 073001.jla.016 Gamma Irradiation
of PPF By Method 1

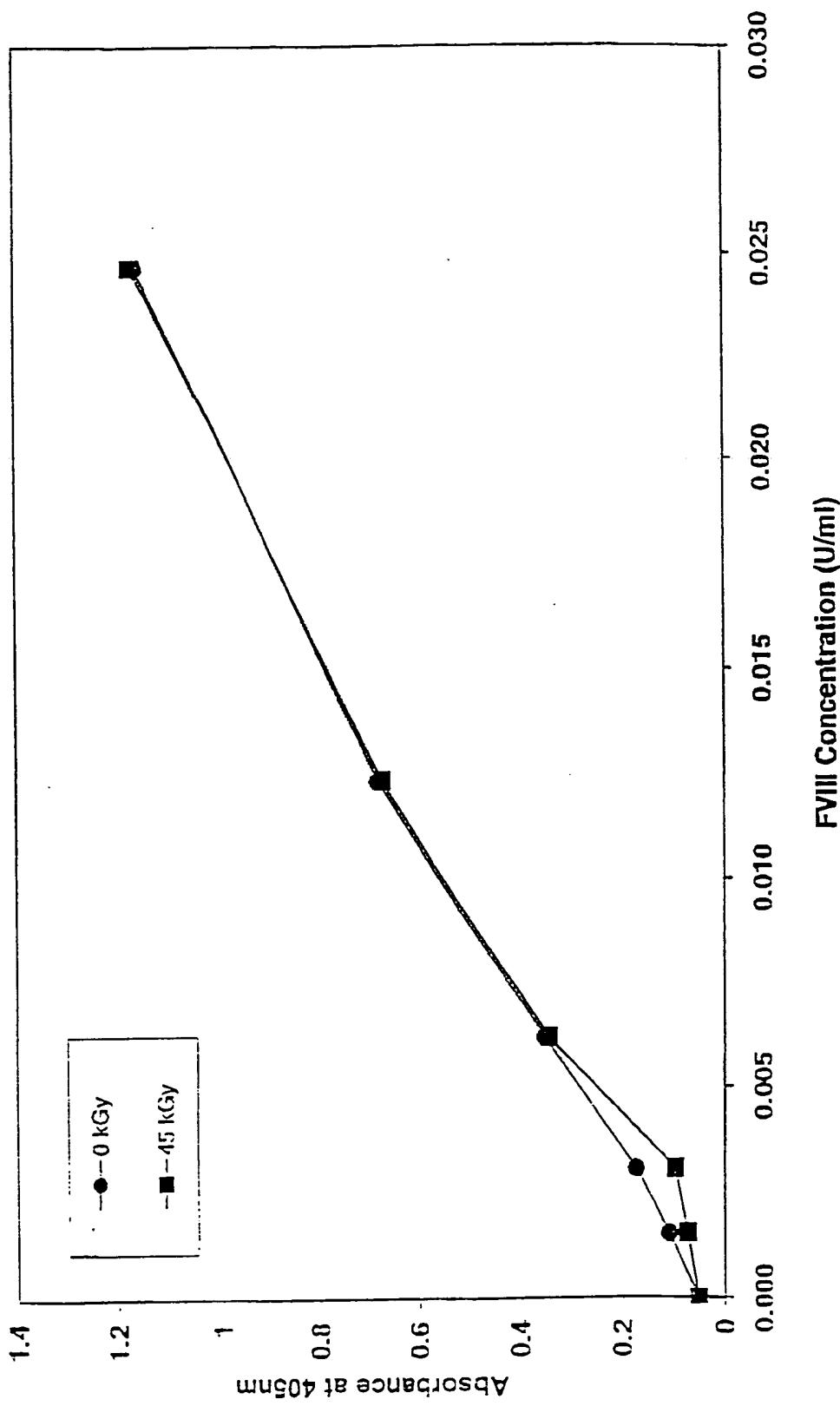
Nonreduced, 12.5%

Reduced, 12.5%



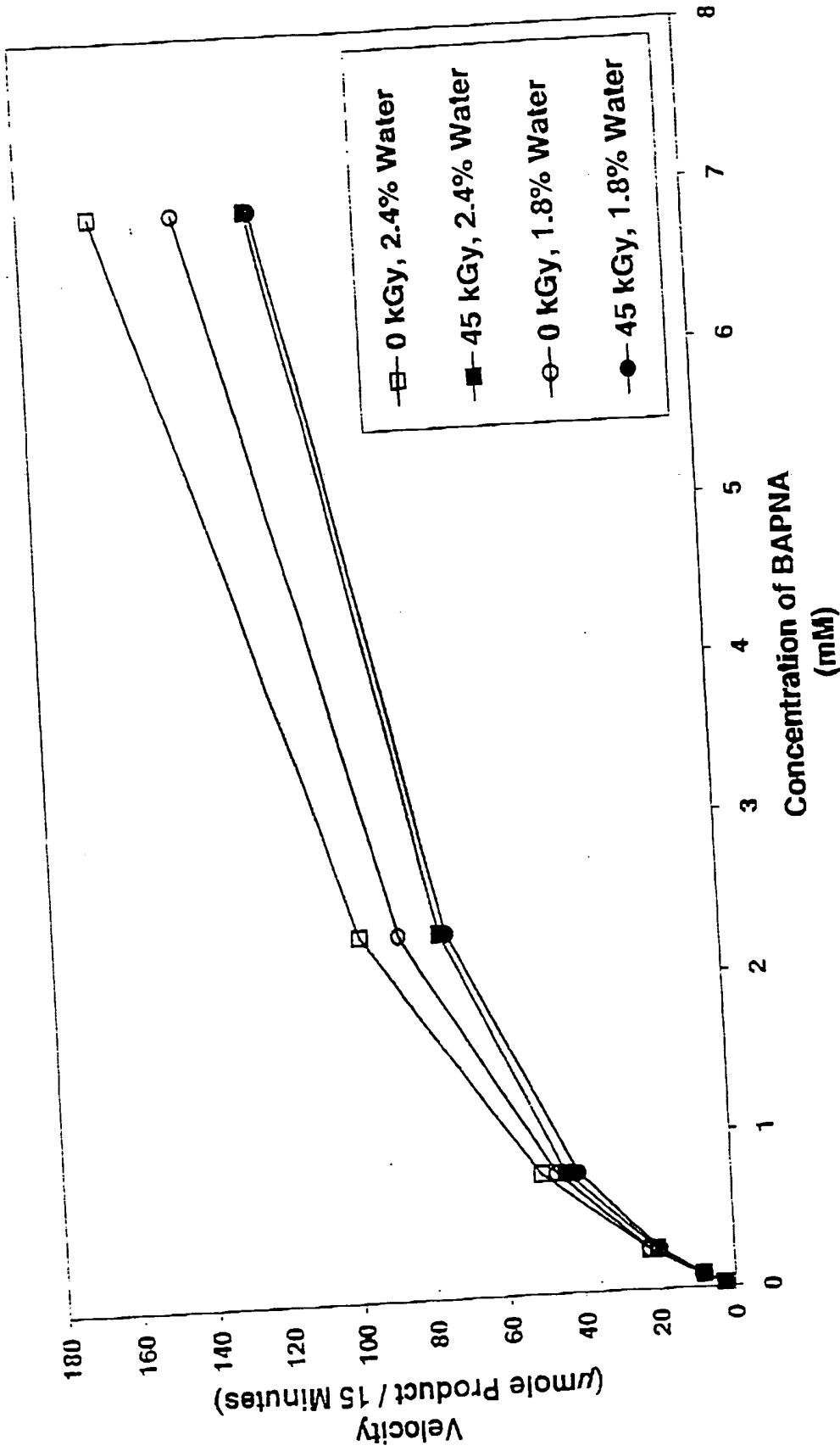
37C

Gamma Irradiation of FVIII

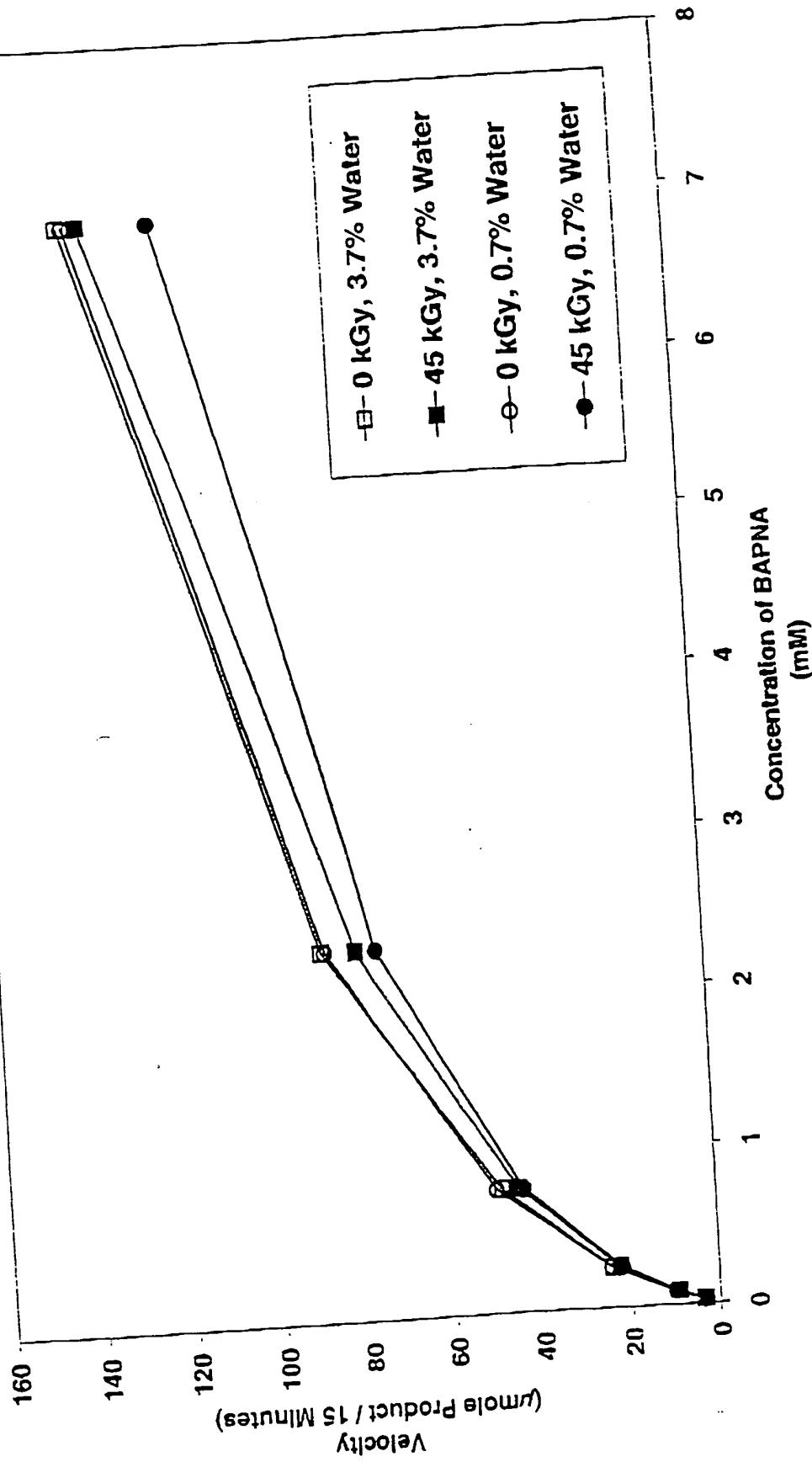


38

Gamma Irradiation of Lyophilized Trypsin in the Absence of Ascorbate



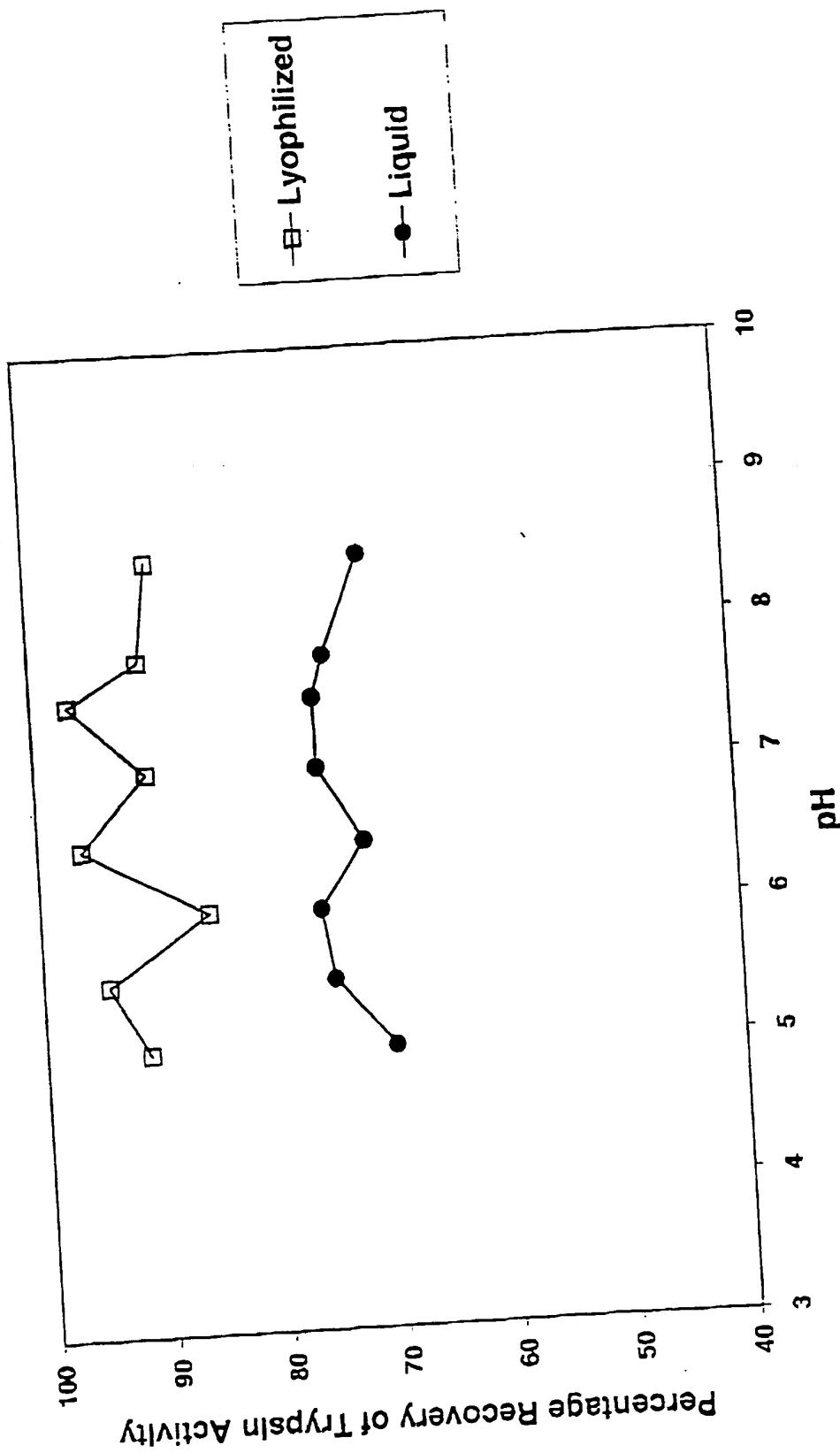
Gamma Irradiation of Lyophilized Trypsin In the
Presence of 100 mM Ascorbate



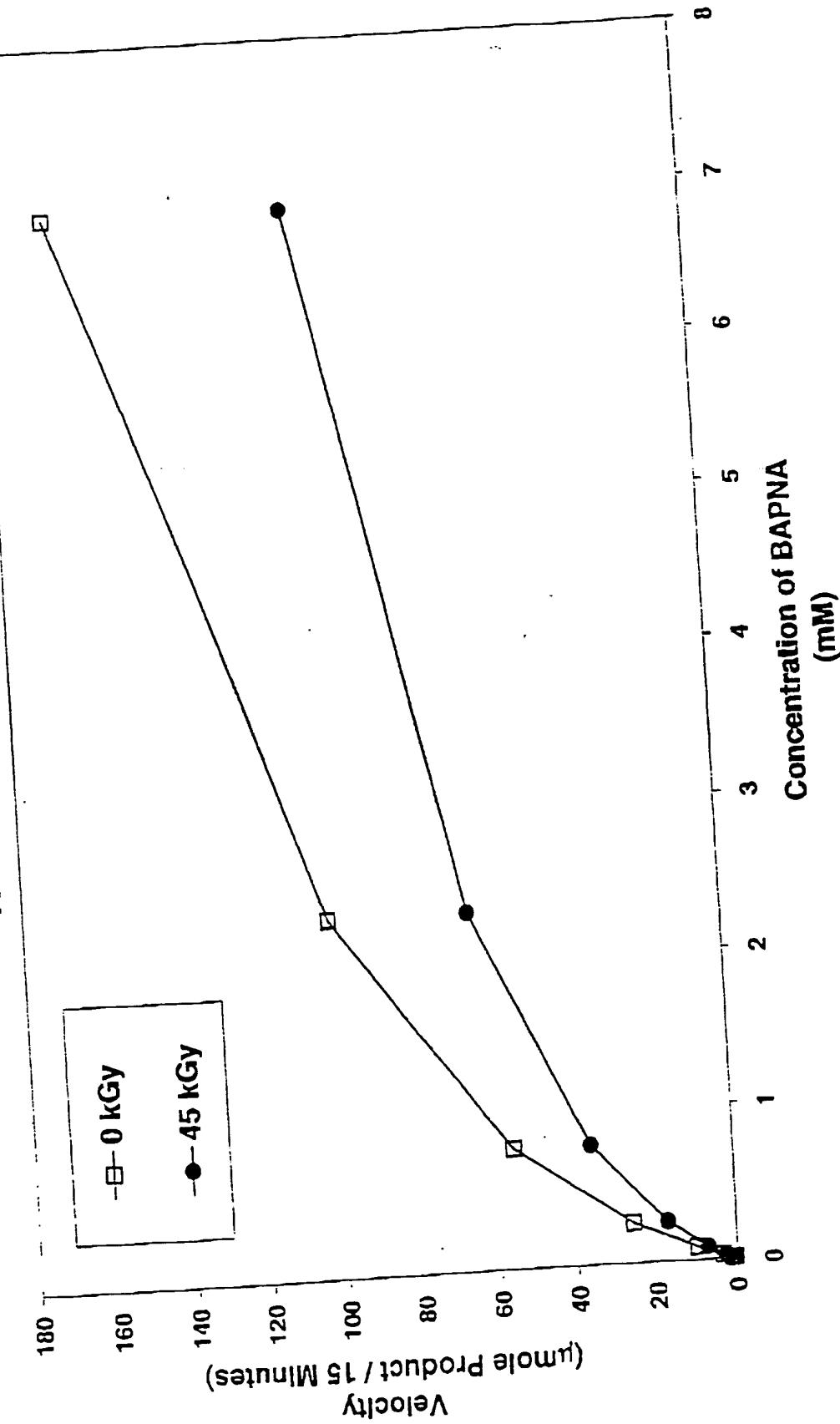
39B

40

Gamma Irradiation of Two Forms of Trypsin In the
Presence of 200 mM Ascorbate

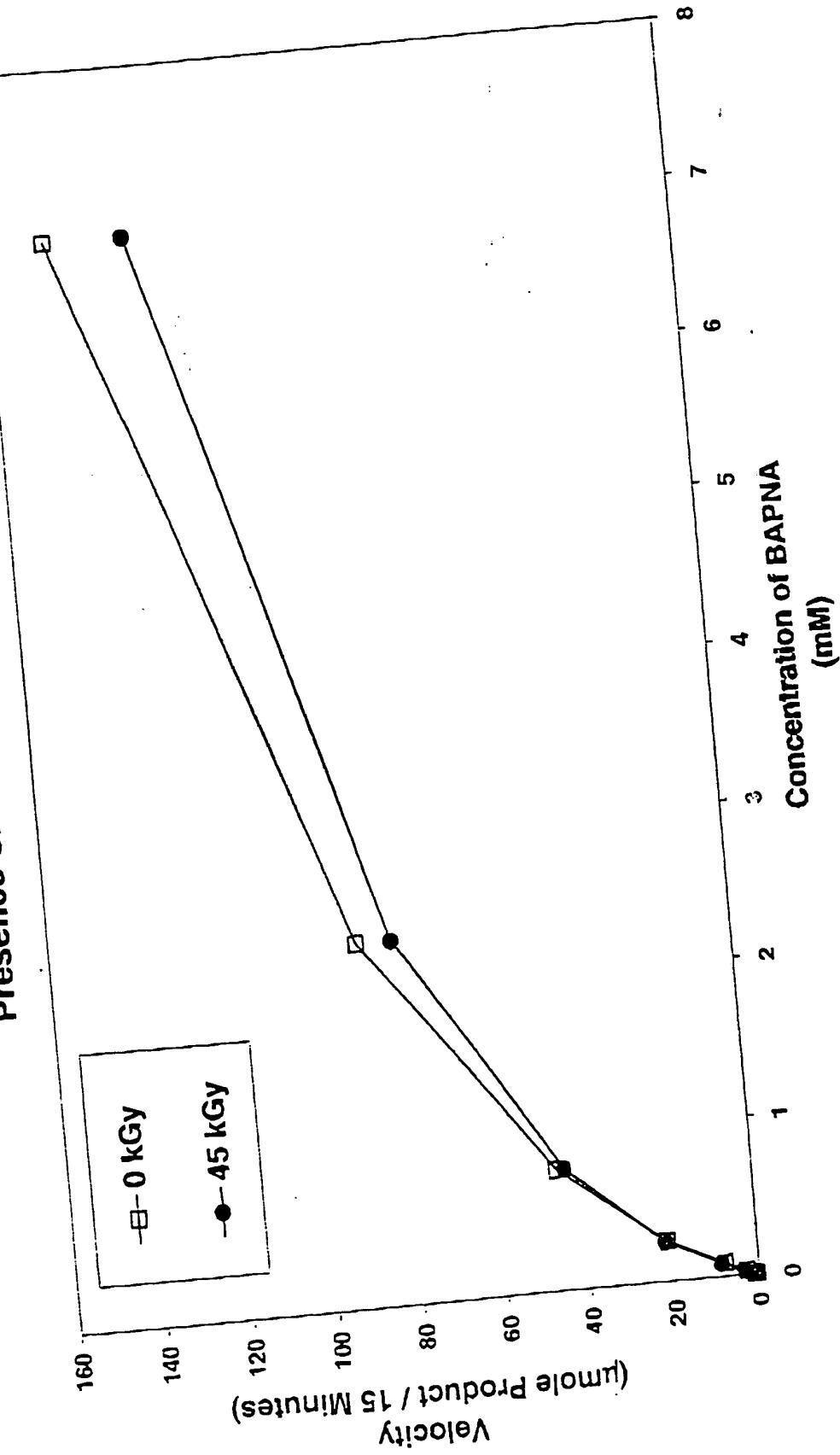


Gamma Irradiation of Lyophilized Trypsin in the
Absence of Ascorbate



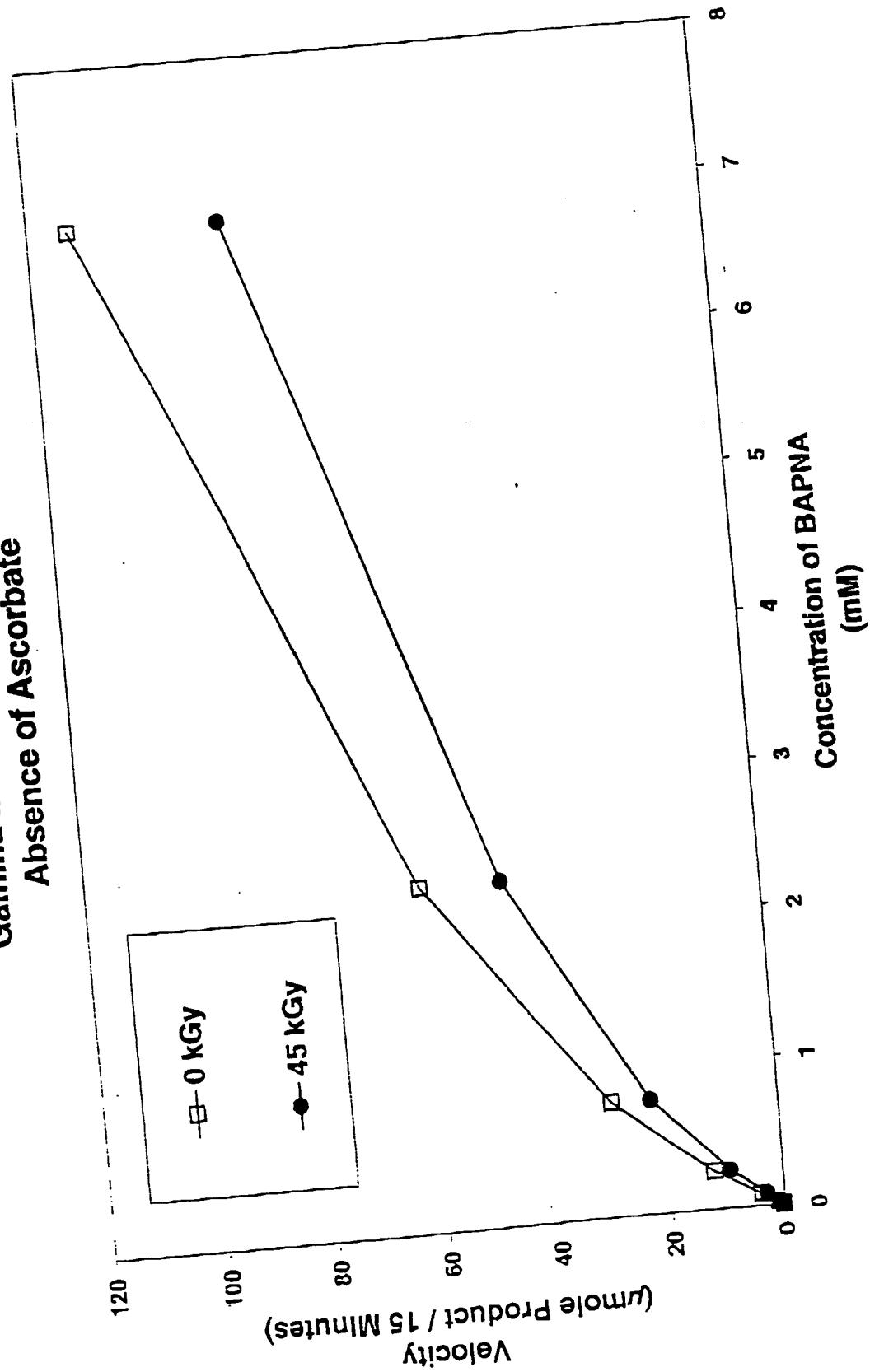
41A

Gamma Irradiation of Lyophilized Trypsin In the
Presence of 200 mM Ascorbate



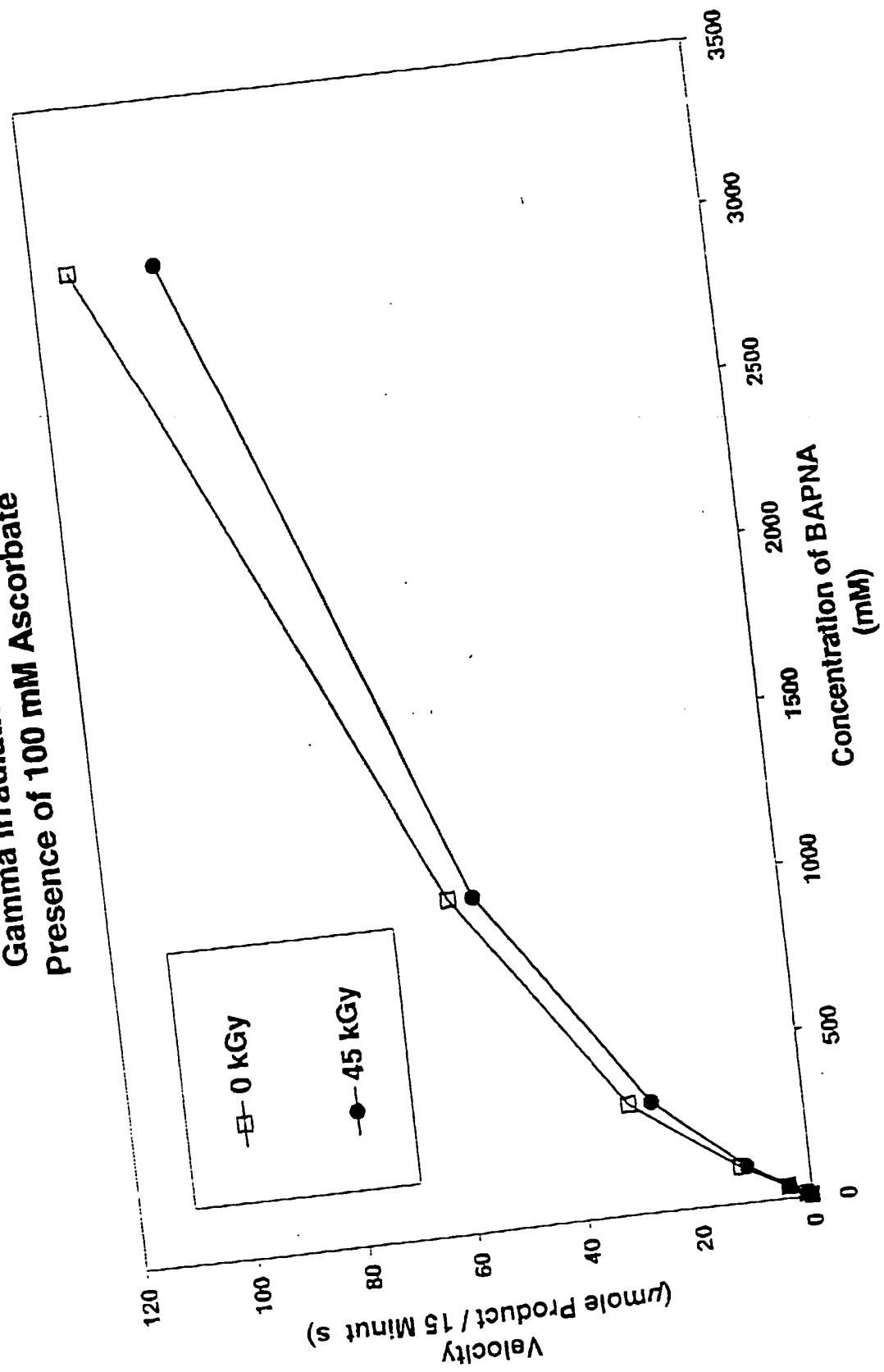
41B

Gamma Irradiation of Lyophilized Trypsin In the
Absence of Ascorbate

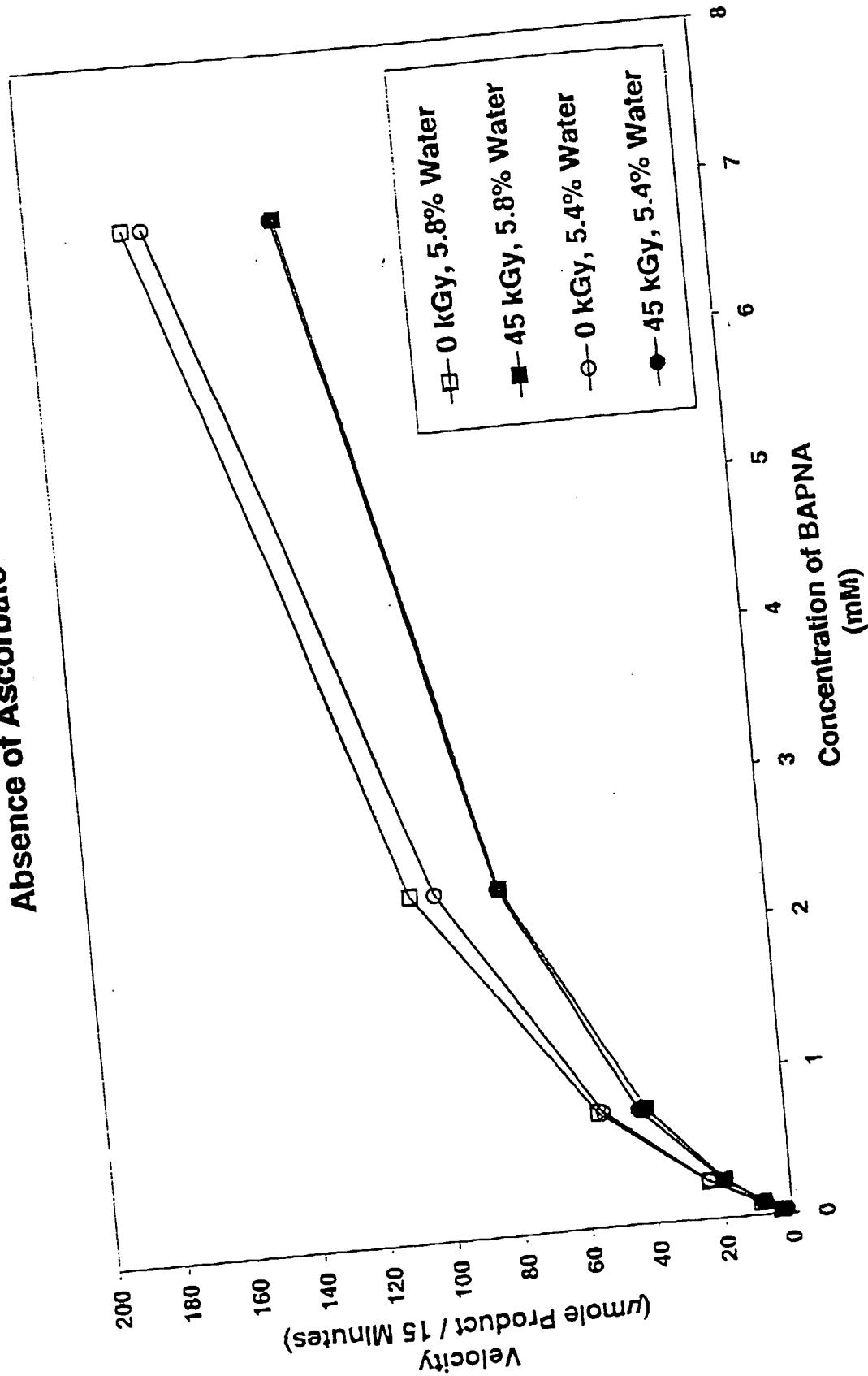


42A

Gamma Irradiation of Lyophilized Trypsin In the Presence of 100 mM Ascorbate

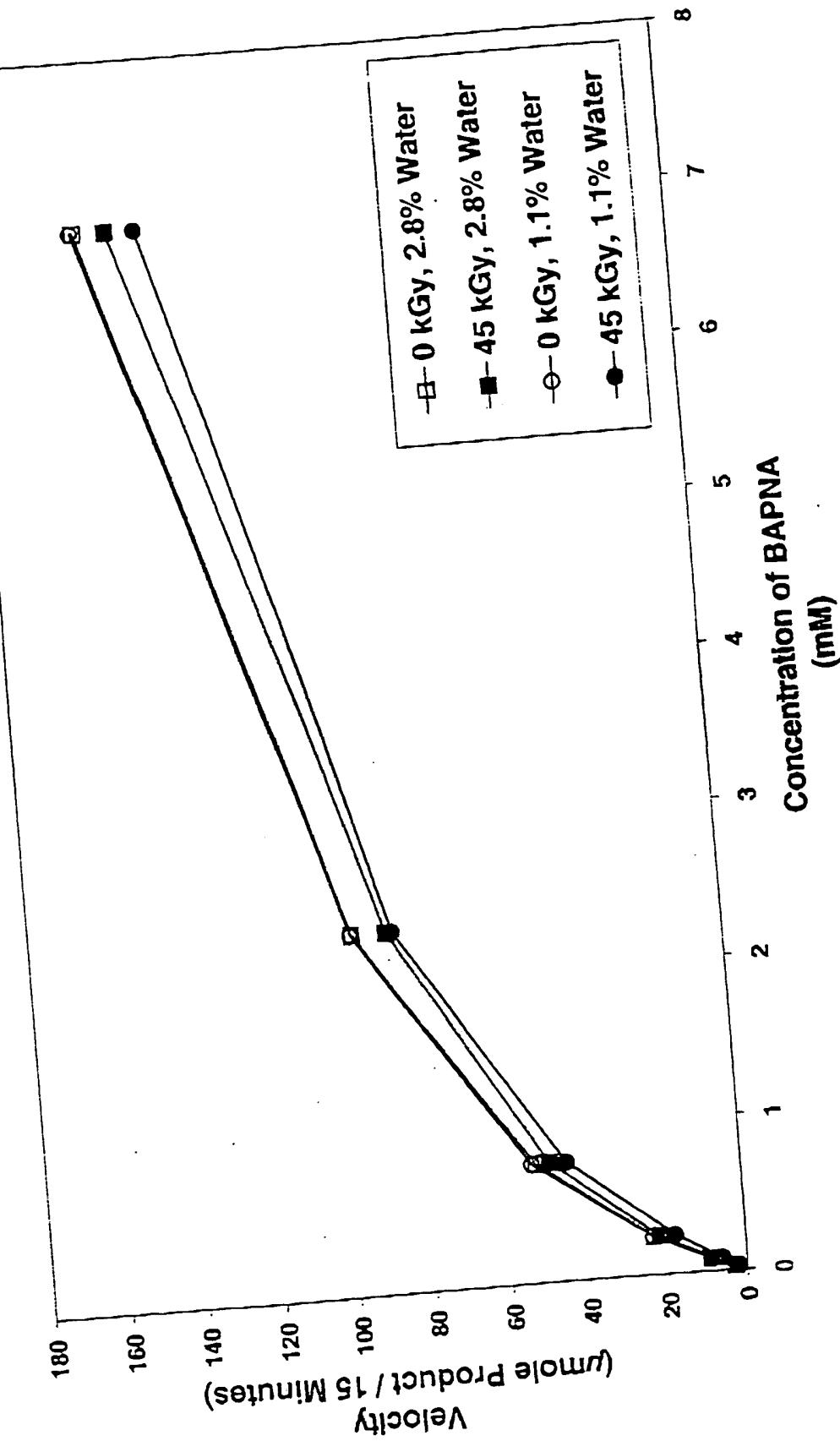


Gamma Irradiation of Lyophilized Trypsin In the
Absence of Ascorbate



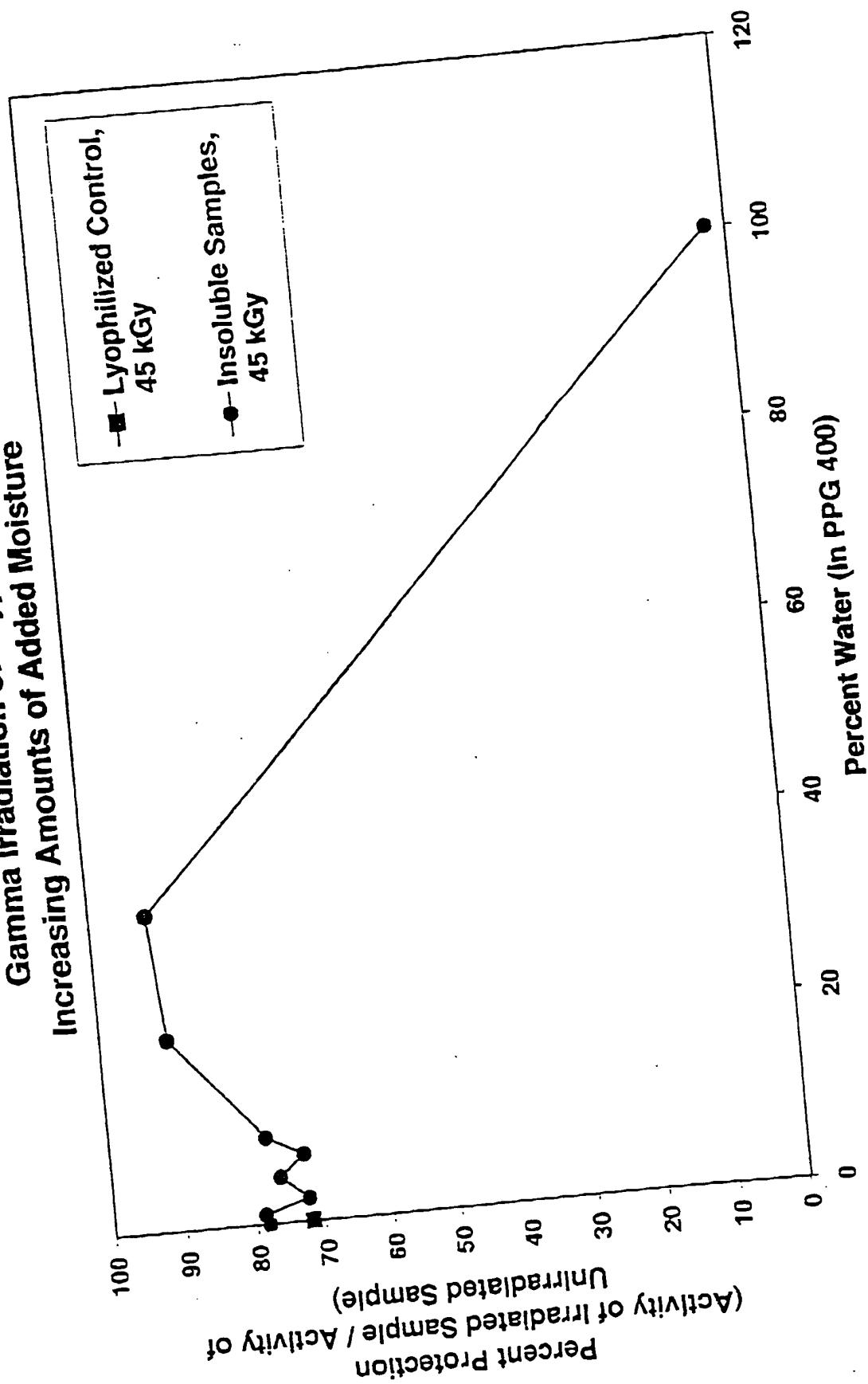
43A

Gamma Irradiation of Lyophilized Trypsin In the
Presence of 100 mM Ascorbate

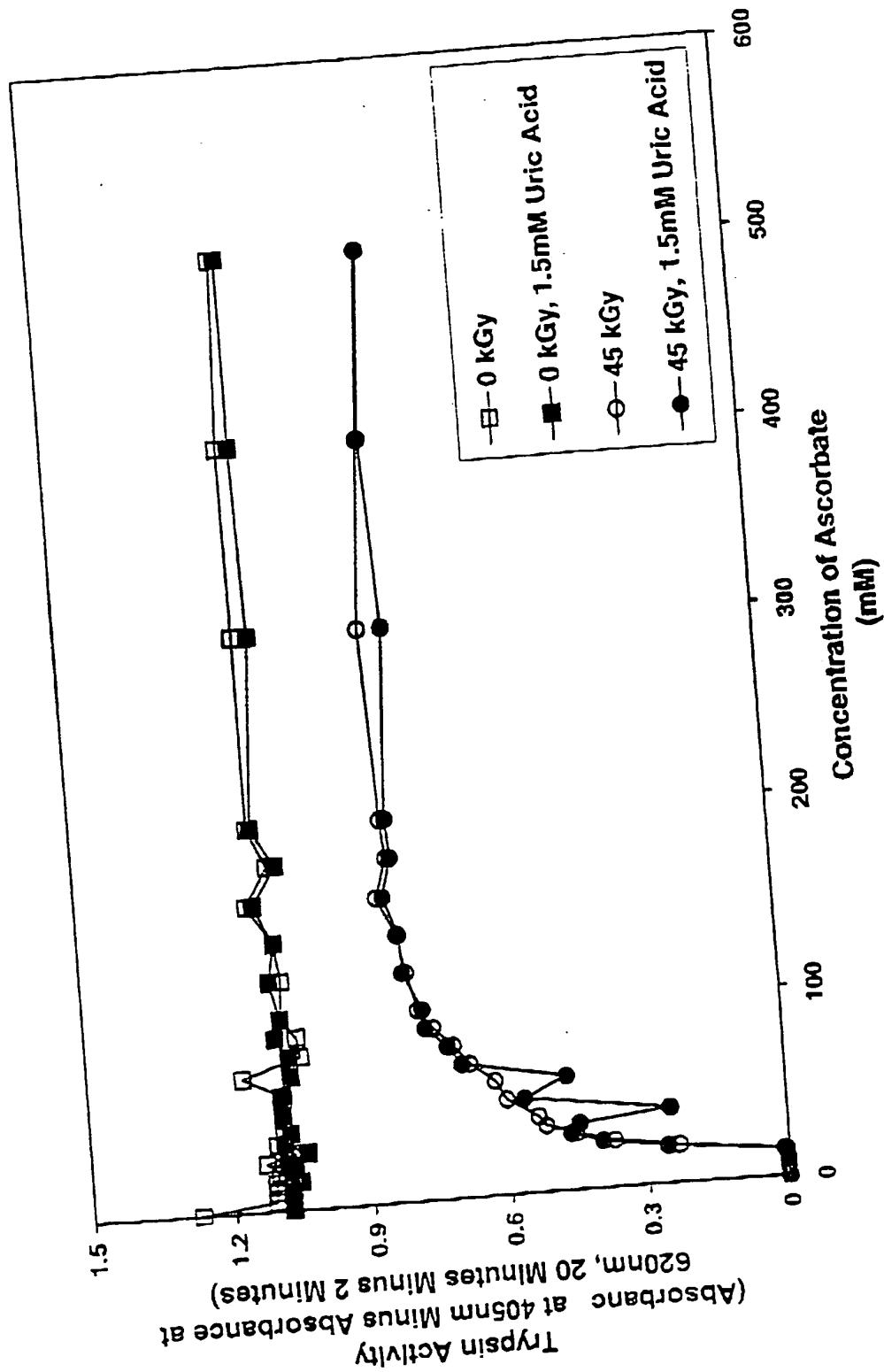


43B

Gamma Irradiation of Trypsin In the Presence of
Increasing Amounts of Added Moisture



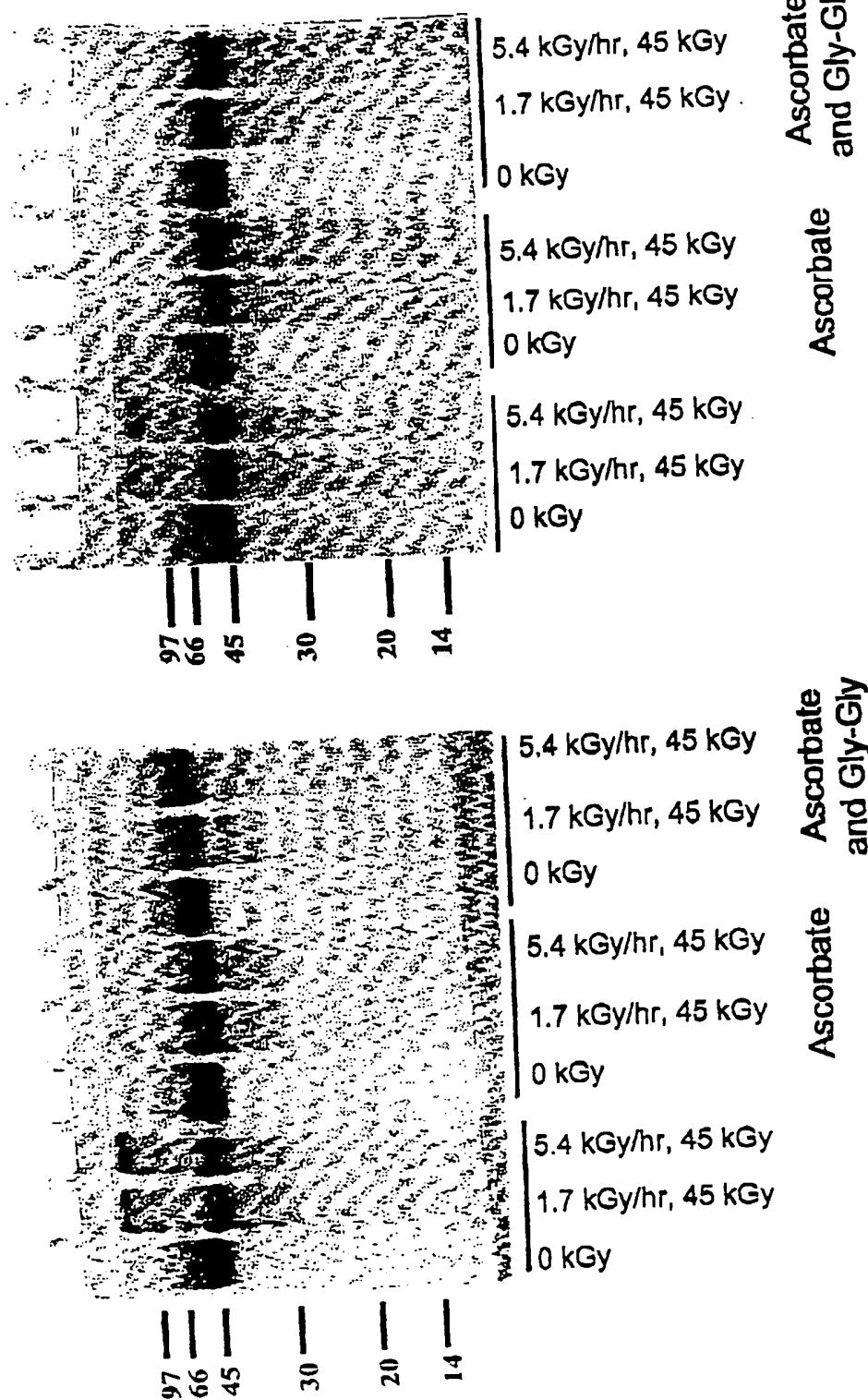
Gamma Irradiation of Liquid Trypsin In the Presence of Increasing Concentrations of Ascorbate



SDS-PAGE for a Glycosidase

Nonreduced

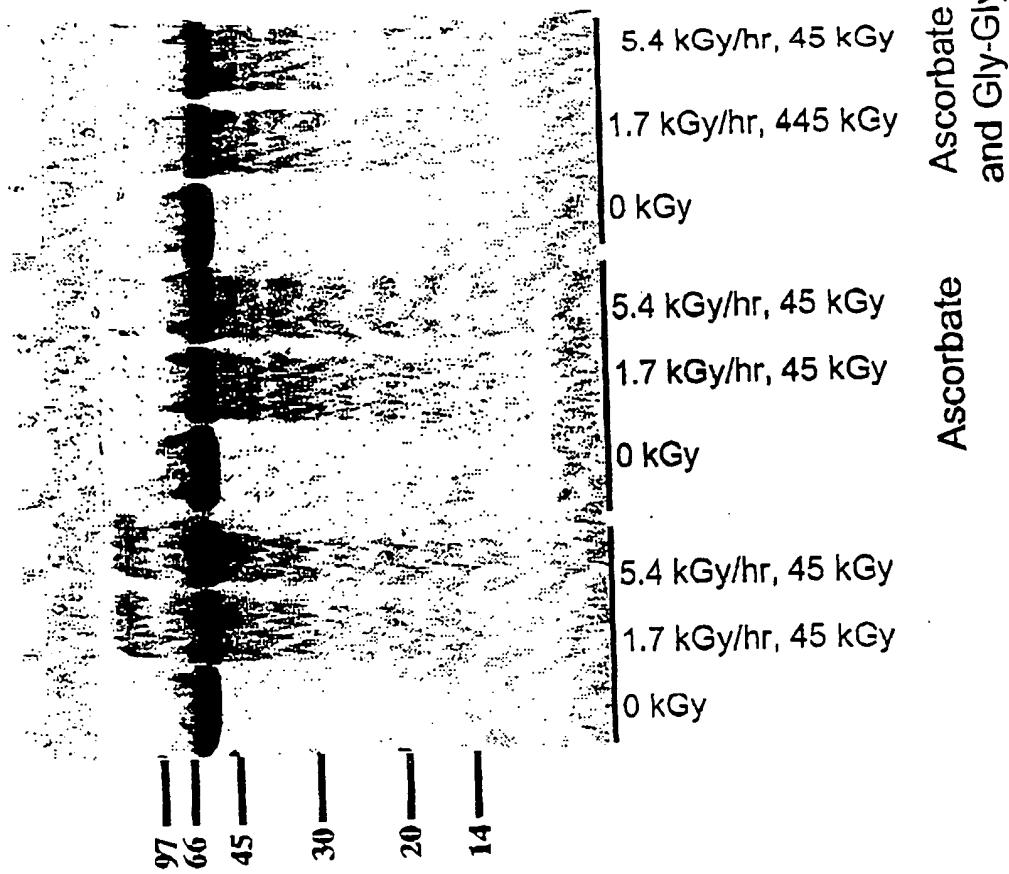
Reduced



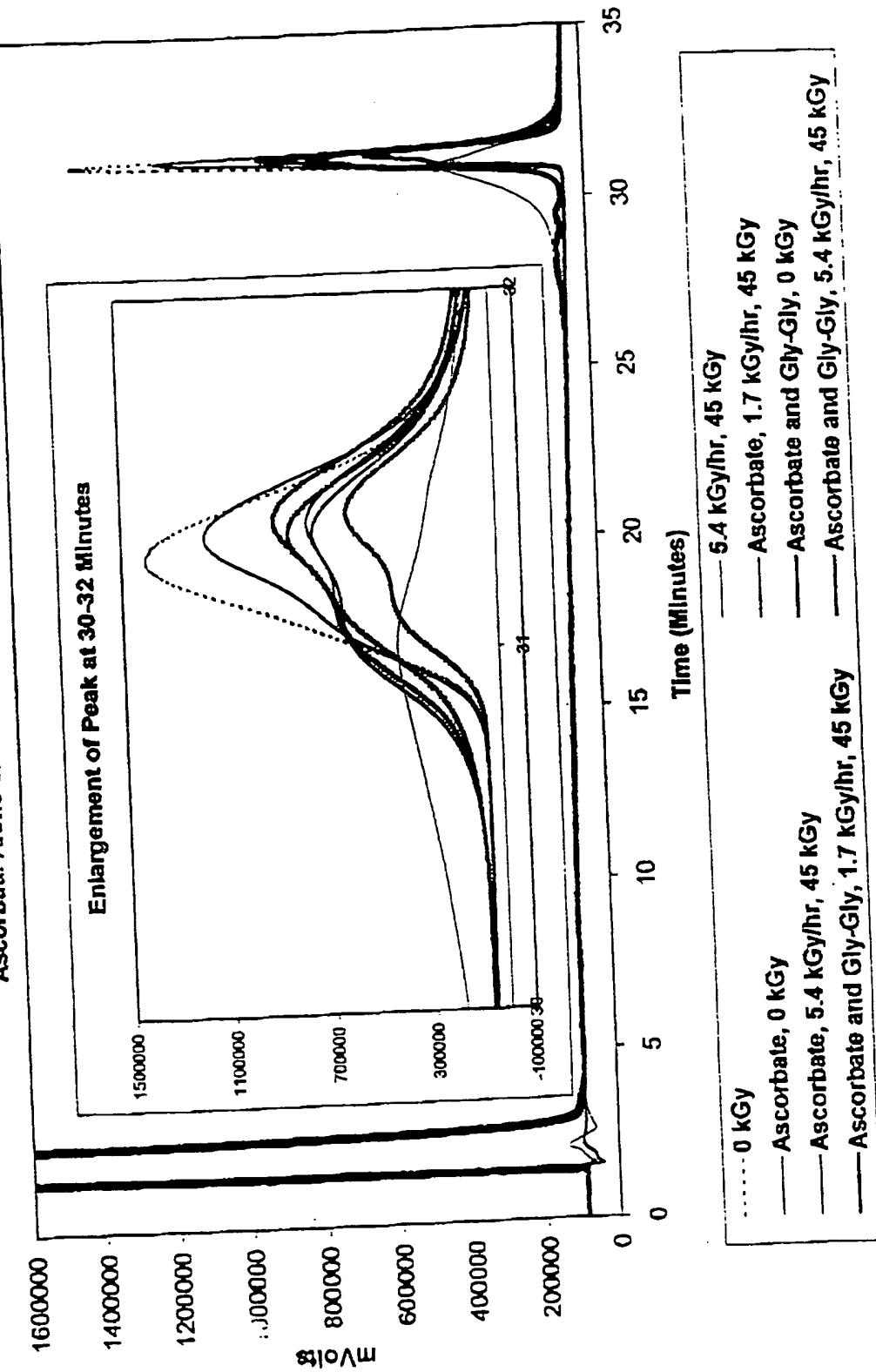
YU ET AL.

SDS-PAGE for a Sulfatase

Reduced

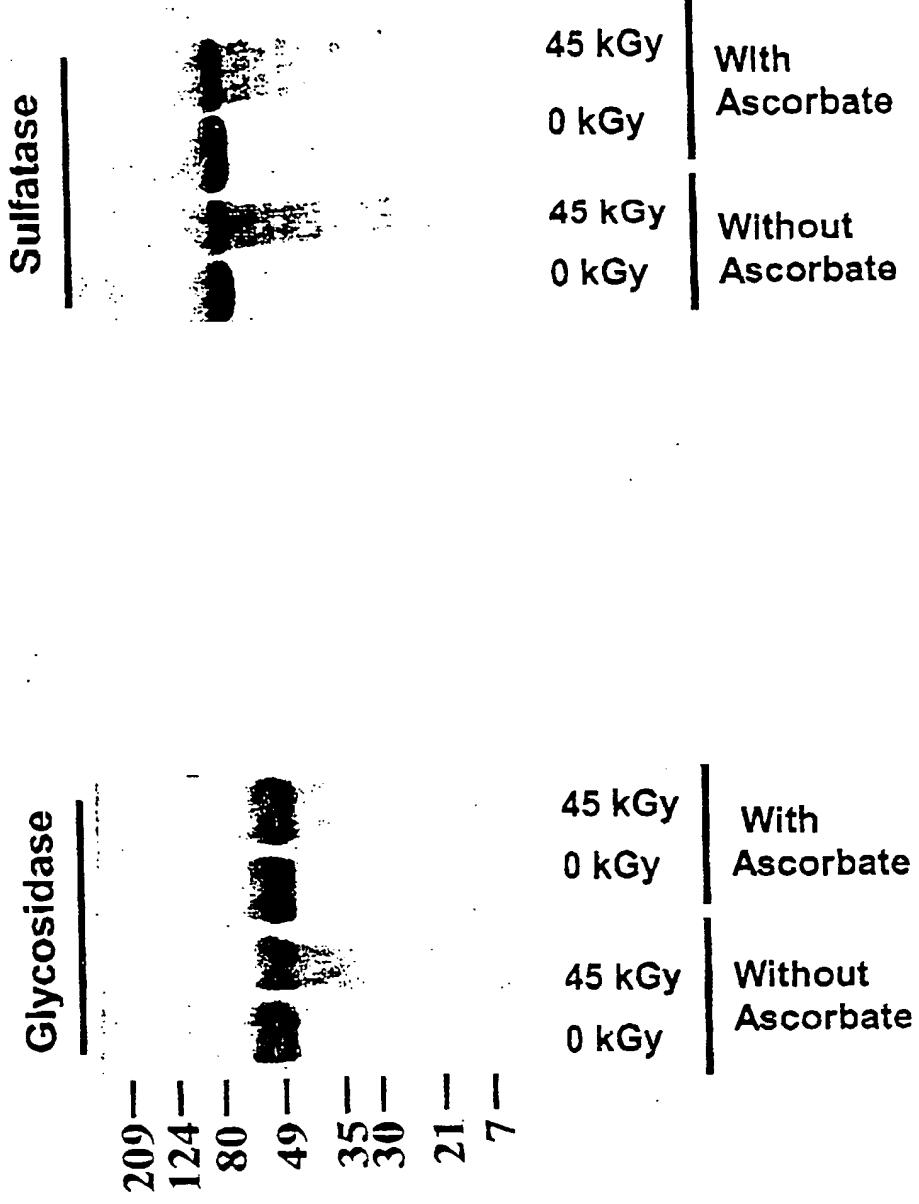


Gamma Irradiation of a Glycosidase in the Presence or Absence of
Ascorbate Alone or in Combination with Gly-Gly

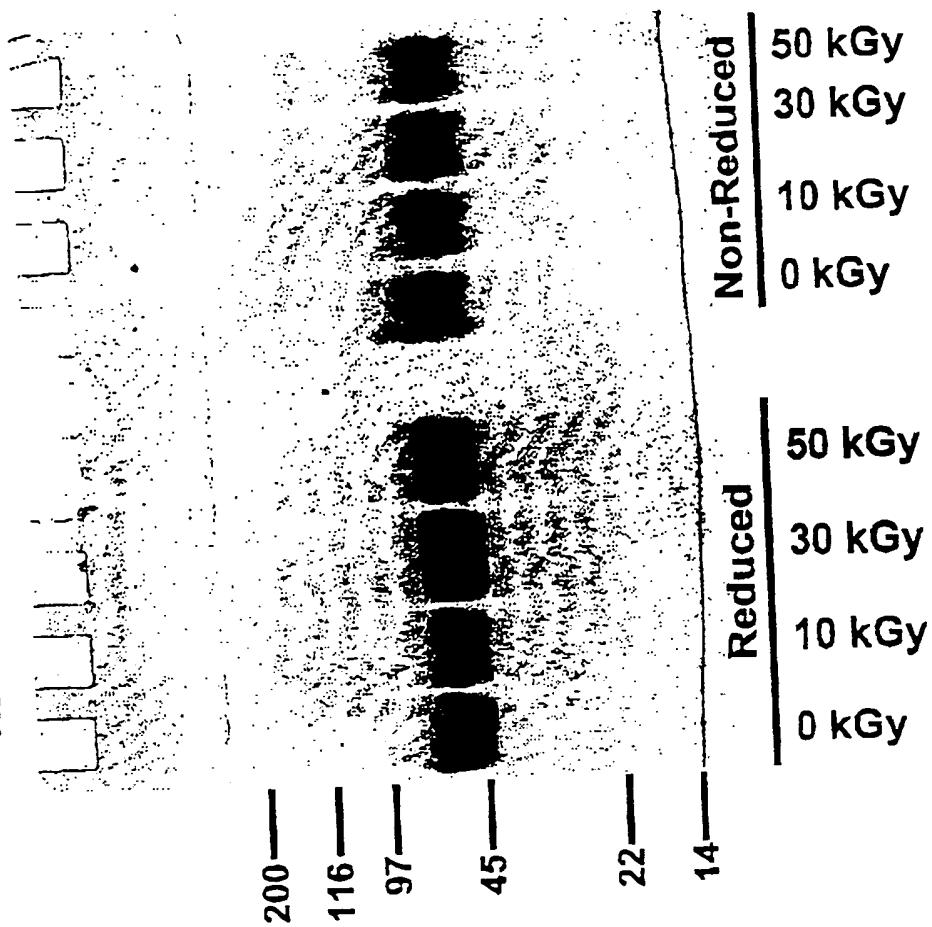


47

Gamma Irradiation of a Lyophilized Glycosidase and Sulfatase In the Absence and Presence of 100mM Ascorbate

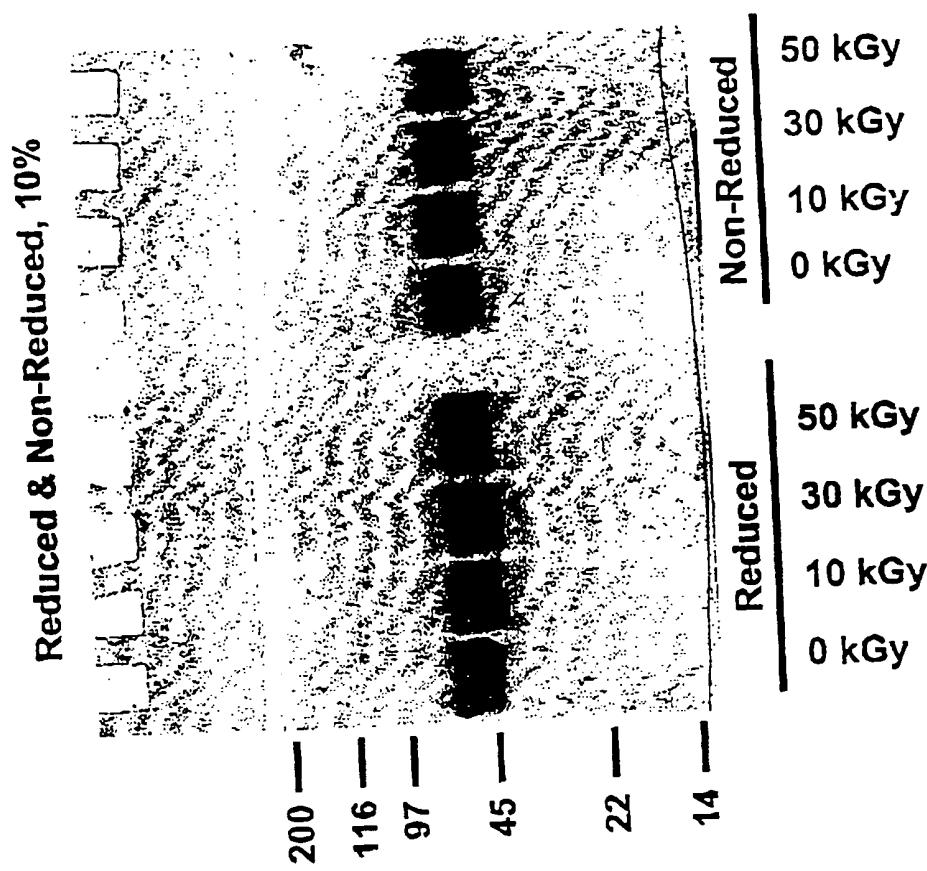


Gamma Irradiation of a Lyophilized Glycosidase
In the Absence of Stabilizers
Reduced and Non-Reduced, 10%



49A

Reduced & Non-Reduced Glycosidase
In the Presence of 200mM Ascorbate



$\gamma\beta$

Gamma Irradiation of a Lyophilized Glycosidase
In the Presence of 200mM Ascorbate and 200mM Gly-Gly

Reduced & Non-Reduced, 10%

